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University of California
Agriculture and Natural Resources
Making a Difference for California

The Green Scene

UC CE

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2019 Horticulture Classes…

Same comment and request as in previous newsletters. Thanks for the input from several people. However, I still haven't decided sort of horticulture class or classes to offer in the remainder of 2019. If you're interested and want to attend, please give me a call or send me an email. I'll consider any request.

11th Horticultural Study Tour: May 2020

My sense is to offer our eleventh tour to gardens of Wales and Scotland in May, 2020. Tentatively, we would begin in London with some free time and then proceed west, first to visit Wisley Garden, the flagship garden of the Royal Horticultural Society. Then, we continue to Wales, which has quite a rich and interesting mix of gardens. Then, for those interested, we continue to Edinburgh for a couple of days, including a visit to the Royal Botanic Garden there, and then head into the highlands to the northwest. I have a draft itinerary at Travel Gallery, and I will look forward to their feedback. I don't have specific dates yet. We don't want to go too early and miss the bloom, nor too late, although the bloom in Scotland is perhaps two-three weeks behind plants in London, depending on the year and the weather.

Nitrogen Application for Turf and Landscape Plants

The nutrient elements found in greatest quantity in plants are carbon, hydrogen and oxygen, all of which are obtained from air and water. After these, nitrogen is the nutrient most needed, and has marked effects on plant growth, especially in maintenance of green color and shoot growth rate. Because of low organic matter content, most Kern County soils contain little nitrogen reserve.

Most plants absorb nitrogen in the nitrate form. In the natural ecosystem, nitrogen is released from decaying organic matter in the form of the ammonium ion (NH_4^+), which becomes converted to nitrite (NO_2^-), and then to nitrate (NO_3^-) by bacteria. This process is temperature dependent, slow in winter but rapid in summer. Because of the negative charge of the nitrate ion, it is not bound to soil particles, which also have negative charges. Nitrogen is easy to add from fertilizer, but nitrate can leach through soil and contaminate ground water. Therefore, it is best to add nitrogen in increments according to plant needs, especially in sandy soils. Compost or other organic materials also contain nitrogen, but at low concentrations of 1-5%, and nitrogen from these is released slowly.

Landscape plants and turfgrasses have varying needs for nitrogen. Plants which grow rapidly, or from which parts are removed through mowing or for harvest, usually have a higher need for nitrogen than do shade trees and shrubs. A useful reference number in horticulture is the general rate of nitrogen application, which is 1 lb actual nitrogen per 1000 square feet. By using this general rate, the rate of application of common fertilizers can be calculated. The first number on a fertilizer label is percentage nitrogen contained. For example, for ammonium sulfate, the label reads 21-0-0, and so it contains 21% nitrogen. How much of this fertilizer do we need to obtain one pound of actual N? We can calculate as 1 / 0.21 = 4.76, so 4.76 pounds of fertilizer or about 5 pounds of ammonium sulfate needed to supply 1 pound of nitrogen. Therefore, about 5 lb ammonium sulfate per 1000 sq ft would be needed to supply nitrogen at the general rate of 1 lb per 1000 sq ft.

Fertilizers vary in nitrogen content and the content of other nutrients, but differences of a few percentage points are usually unimportant. Although fertilizers may be marketed with photos of citrus, tomatoes, watermelon, etc., on the package, the fertilizer materials are often similar from product to product. It is not necessary to buy a different fertilizer for every plant in the landscape! Fertilizers are often more expensive for various conveniences, e.g., forming the product into stakes, making the product very water-soluble, or providing nitrogen in a slow-release form.

For common landscape and garden situations, the following nitrogen (N) rates are suggested:

- For turfgrasses, the N rate can be 1-2 lb actual N/1000 sq ft per growing month. This is a high rate used for intensively maintained turfgrasses. In parks, perhaps no nitrogen is applied. For low maintenance turfs, a single application of N at 1 lb actual N per 1000 sq ft may be made in spring, and an additional application in fall. For home lawns, nitrogen can be applied at 1 lb actual N per 1000 sq ft periodically during the growing season, for example, one application every six – eight weeks, about the time it takes quick-release fertilizers to be consumed.
- For vegetable gardens, nitrogen may be applied preplant at 1 lb actual N/1000 sq ft and tilled in, followed by another application during fruiting.
- For trees, a single application of 1-2 actual N per 1000 sq ft beneath the tree crown is usually sufficient, if desired. Fruit trees generally need N applications every season; shade trees do not.

Most landscape plants do not need annual N fertilization when mature. It is usually best to maintain them at a slow growth rate so the landscape does not become overgrown and need premature replacement. When landscapes are newly established, one or two applications of N per year at 1 lb actual per 1000 sq ft may be helpful in bringing the landscape to maturity.

John Karlik
Environmental Horticulture/Environmental Science