

How much N, P and K?

Because of the author's experiences, recommendations are based on using ureaform nitrogen in a single application at planting time, or once a year or less often under maintenance conditions.

Other slow-release N sources are suitable for long-term effects, and should be considered over fast-release fertilizers for these infrequent applications. For the purpose of clarification, "luxury turf" is defined as that composed of improved varieties of turfgrass cultivars mowed and maintained for aesthetic appearance near buildings and along urban parkways.

Seedbeds, luxury turf

400 lbs. ureaform, 38-0-0, (152 lbs. N) + 400 lbs. 6-24-24 (or other high P-K fertilizer) per acre, applied separately* or blended.

Seedbeds, low-maintenance grasses and groundcovers

200-lbs. ureaform, 38-0-0, (76 lbs. N) + 200 lbs. 6-24-24 (or other high P-K fertilizer) per acre, applied separately* or blended.

(* In seedbeds, phosphorus and potassium will be more efficiently utilized over a longer period if incorporated in the top three-to-four inches of the soil prior to seeding. The nitrogen fertilizer should be surface-applied for best results. Mulching or slight incorporation will help prevent rainfall from moving particles away from the site of application.)

Under sod

115 lbs. ureaform, 38-0-0, (44 lbs. N) + 200 lbs. 6-24-24 (or other high P-K fertilizer) per acre. Equivalent to 1 lb. N per 1000 sq. ft. Slightly incorporate into the soil surface prior to laying the sod.

Established luxury turf

400 lbs. ureaform, 38-0-0, (152 lbs. N) + 200 lbs. potassium sulfate, 0-0-50, (or 150 lbs. potassium chloride, 0-0-60) per acre. Apply in spring or early fall.

Established low-maintenance grasses and groundcovers

200 lbs. ureaform (76 lbs. N) + 100 lbs. potassium sulfate, 0-0-50, (or 75 lbs. potassium chloride, 0-0-60) per acre. Apply separately or blended, spring or early fall.

Tree establishment (bare root or ball and burlap)

1/2 lb. ureaform, 38-0-0 + 1/2 lb. single super-phosphate, 0-20-0, per 1/2-inch trunk diameter.

Mix fertilizer with backfill to be replaced in the planting hole. *Application technique tip*.....Mark out the planting hole locations with pre-measured amounts of fertilizer. Power-auger directly through the pile, automatically blending the fertilizer with the back-fill as the hole is dug.

A soil test may indicate that levels of phosphorus and/or potassium are adequate to sustain growth. If so, apply ureaform only. If potassium is required, it is best to apply it on the surface in order to dilute the salt concentration in the vicinity of the newly planted roots.

Seedling trees and shrubs

2 ozs. ureaform, 38-0-0, + 2 ozs. of a high P-K fertilizer, surface broadcast around each planting. In an area of many closely spaced plantings, surface broadcast 400 lbs. ureaform, 38-0-0, + 400 lbs. of 6-24-24 (or other high P-K fertilizer) per acre. Apply separately or blended.

Established trees and shrubs

Surface apply 1/2 lb. ureaform, 38-0-0, per inch of trunk diameter uniformly beneath the canopy.

Trees and shrubs almost always will exhibit a response to nitrogen fertilization. Trees showing an unusually pale leaf color may be suffering from iron chlorosis. This is mostly a problem in alkaline soils. It can be corrected with iron chelate.

—C. Robert Staib.



C. Robert Staib, Nor-Am Chemical Co.

The three most popular of these are SCU (sulfur-coated urea), IBDU (isobutylidene diurea), and ureaform. The mode of release from each of these varies considerably.

SCU, 32 percent or 37 percent, releases nitrogen by diffusion through cracks, pinholes, and fissures in the coating. Typically, a third or more of the N is released in one week following application, with the remainder available over the next several weeks.

However, any stress—mechanical or weathering—affecting the coating will increase the rate of diffusion. It is faster in warm soils, and particularly so following rapidly alternating wet and dry periods.

IBDU (31 percent N) releases nitrogen via hydrolysis to urea in the presence of moisture. Large particles of IBDU hydrolyze more slowly than fine-grade product, and affect a more sustained release during wet weather. Little nitrogen is released from IBDU when moisture is lacking.

Ureaform (38 percent N) is a reaction product of urea with formaldehyde, forming carbon: nitrogen linked polymers of varying chain length and solubility.

The shortest-chain polymers are sparingly soluble in water, while intermediate and long-chain polymers are water insoluble. These polymers, or compounds, are known as methylene ureas.

Nitrogen is released by soil bacteria feeding on the polymers. The short-chain C:N linkages are more readily digestible.

Under growing-season conditions, about 1/3 of the N is released in four-to-six weeks, 1/3 at two-to-12 months, and 1/3 over one-to-two years. A slight residual amount will carry over to be available the third year following application.

Research at the University of Illi-