Fertilizer rates affect bermudagrass varieties differently

by Eddie Funderburg / efunderburg@noble.org

There are many varieties of bermudagrass, and they respond to nitrogen fertilizer in different ways. A research study was conducted at the Noble Foundation from 2008 to 2010 to see if fertilizer could be used more efficiently by fertilizing different varieties to their optimum response rate. As a point of information, this study was conducted in south-central Oklahoma and results may vary greatly in different parts of the country.

We looked at seven varieties of bermudagrass and two varieties of old world bluestem. The seeded bermudagrass varieties were common, a blend of common and Giant, Wrangler, and Cheyenne. The hybrid bermudagrass varieties in the test were Coastal, Midland 99 and Tifton 85. The old world bluestem varieties were Plains and WW-B Dahl. The nitrogen rates used were 0, 50, 100, 200 and 300 pounds per acre. No more than 100 pounds of nitrogen per acre were applied at one time. In plots where more than 100 pounds of nitrogen per acre were used, the application was split about 30 days apart. Keep in mind that soil pH was good in this test, and phosphorus (P) and potassium (K) were at optimum levels. If your soil is low in P and/or K, or highly acidic, your results will likely be different from ours unless you correct these problems.

Interesting trends were noted in the study. The old world bluestem varieties did not respond to more than 50 pounds of nitrogen per acre. WW-B Dahl responded better to nitrogen fertilizer than Plains. If you have old world bluestem varieties in the Southern Great Plains, our study shows that you should use either 0 or 50 pounds of nitrogen per acre.

Seeded bermudagrass varieties responded well at rates up to 100 pounds of nitrogen per acre, but not to higher rates. From this data, we suggest that producers use 0, 50 or 100 pounds of nitrogen per acre if they have common, a blend of common/Giant, Cheyenne or Wrangler if their land is in the Southern Great Plains.
Hybrid bermudagrass varieties (Coastal, Midland 99 and Tifton 85) responded well to nitrogen rates of up to 300 pounds of nitrogen per acre. Keep in mind that our maximum nitrogen rate tested was 300 pounds per acre, so they may respond to higher rates than this. These varieties can utilize high nitrogen rates, so apply all you want until you meet your production goals or your budget runs out.

You can better use your fertilizer money on bermudagrass if you know your variety and fertilize it at its optimum rate. Applying more than a variety can utilize is wasteful, and under-feeding a variety that is able to use higher nitrogen rates will limit its potential yield. More information on this study can be found in the Noble Foundation fact sheet *Effect of Nitrogen Rate on Yield of Nine Warm-season Introduced Perennial Forage Varieties* http://www.noble.org/global/ag/soils/warm-season-perennial-forage/nf-so-12-01.pdf.

This fact sheet is a bit more technical than most we produce, but it has a great deal of information that can help you determine the best nitrogen rate for your situation.