

CRITICAL SOIL TEMPERATURES FOR NITRATE CONVERSION

The critical temperature for converting ammonium nitrogen over to the nitrate form—which will move down through the soil in drainage water—is about 42°F., says O. E. Anderson of the Georgia Experiment Station.

If the soil temperature is below 42°F., little change of nitrogen will take place, says Anderson. But if the soil temperature is above 42°F., the soil microbes will convert the ammonium to the nitrate form in a relatively short time, he says.

In one experiment, with a 52°F. soil temperature, virtually all of the ammonium was converted to nitrate within 12 weeks, Anderson says. But at 42°F. only about one-third was converted in 12 weeks. This fertiliser had been applied at normal rates for fall and winter crops.

Conversion starts more slowly at the lower temperatures, Anderson says. But, over a 3-month period, a daily average of 1.2 pounds of ammonium nitrogen was changed to nitrate nitrogen at 42°F. Some conversion took place even at temperatures as low as 37°F., but it was negligible.

Anderson concludes that the conversion of ammonium to nitrate proceeds at an appreciable rate in most well-limed Piedmont soils, until the soil temperature drops below 42°F. It is unlikely that much fall-applied nitrogen will be carried over to the spring in the ammonium form, except that which is applied just before the time when soil temperatures normally drop to 42°F. and below.

(With acknowledgments to "The Golf Course Reporter".



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