

## SOILS

# Proper liming, fertilizing increases winter pasture profit

by Eddie Funderburg / [efunderburg@noble.org](mailto:efunderburg@noble.org)



**Lime and** fertilizer make up a substantial portion of the costs of producing winter pasture. Lime may or may not be needed – only a soil test can tell you for

sure. If lime is recommended, its application can pay good dividends. Figure 1 shows how much yield response can be obtained from liming a soil with a pH of 4.9 to 6.1. This application of lime was very profitable, as can be seen in the September 2011 *Ag News and Views* article, *Does Lime Pay on Winter Pasture?* ([www.noble.org/ag/soils/lime-winter-pasture](http://www.noble.org/ag/soils/lime-winter-pasture)).

Soil testing also tells you if you need to apply phosphorus or potas-

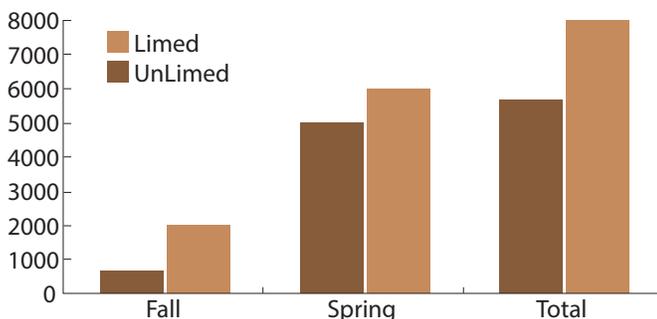
sium. The following information on nitrogen management assumes that neither phosphorus and/nor potassium are limiting yield, or that they were applied as recommended by soil test results.

How much nitrogen is needed on winter pastures? Figure 2 shows that wheat/rye/ryegrass pastures respond well to nitrogen at rates of up to 200 pounds of actual nitrogen per acre. However, the amount of response per unit of nitrogen declines when more than 100 pounds of actual nitrogen per acre are applied. Therefore, we generally recommend 100 to 150 pounds actual nitrogen per acre for optimum yield.

When should the recommended nitrogen be applied? You can apply

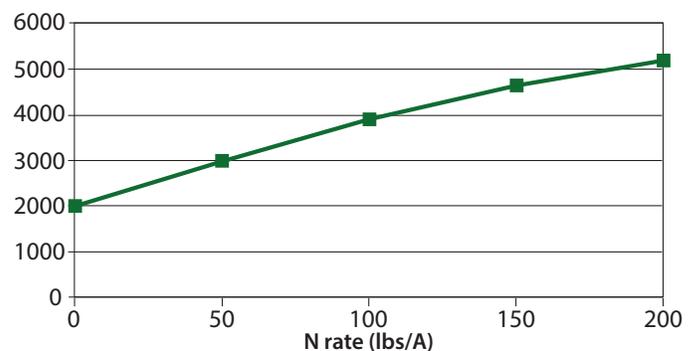
nitrogen at or near planting, in the early spring (February), or split the application between the two periods. A study (Nitrogen Timing for Winter Pasture) conducted by Noble Foundation researchers concluded that applying all the recommended nitrogen at or near planting resulted in more fall growth than when all the nitrogen was applied in February, or when half was applied at or near planting and half was applied in February. Applying all the nitrogen in February resulted in the most spring growth, and splitting the application resulted in more uniform growth between the fall and spring periods. All three different timings resulted in the same total forage yield – the difference was what time of year the forage was produced. ▶

**Figure 1. Effect of lime on rye/wheat forage yields**



Burneyville, Okla., 1999-2001  
Unlimed pH 4.9 – Limed pH 6.1

**Figure 2. Total winter pasture forage yield response to applied N**



Burneyville, Okla., 1979-1992

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If you are like most producers and have more difficulty producing fall forage than spring forage, it may be advisable to apply all the nitrogen at or near planting if you are using 100 pounds of actual nitrogen per acre or less. If you are applying more than this rate, it may be better to apply 100 pounds of actual nitrogen per acre at or near planting, and the rest of the nitrogen in February.

If you go to the trouble and ex-

pense of planting winter pasture, it should be fertilized. It is much more profitable to fertilize winter pasture than to plant it and not fertilize it if you are running stockers. The *Ag News and Views* article *Fertilizing Winter Pastures* ([www.noble.org/ag/soils/winterpastures/](http://www.noble.org/ag/soils/winterpastures/)) from August 2007 shows how to calculate the amount of increased profits from fertilizing an existing winter pasture.

Collect soil samples and send them

to a reputable lab to determine if you need to add lime, phosphorus and/or potassium, and to see how much carryover nitrogen is in your soil. If lime is recommended on winter pasture, its use will increase profits. Phosphorus and potassium must either be present in the soil in large enough quantities that they are not needed as fertilizer or they must be applied at recommended amounts for nitrogen to be efficiently utilized. ■