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Give Proper Credit, Eliminate Unnecessary Nutrient Applications to Save Money

LINCOLN, Neb. & Crediting soil for beneficial nutrients or eliminating the over-application of such nutrients can save farmers big bucks in fertilizer costs, according to University of Nebraska-Lincoln research.

Whether it is crediting soil organic matter for nitrogen or eliminating the unnecessary use of phosphorus, potassium and sulfur, these and other cost saving tips to help deal with high input costs in crop production can be found at UNL's Surviving High Input Costs in Crop Production (**http://cropwatch.unl.edu/survivinghighinputcosts.htm**) Web page.

Here are four money savings suggestions:

1) Credit soil organic matter for nitrogen. The percentage of organic matter in the soil is a factor used by UNL to make recommendations for nitrogen fertilizer in corn and other crops, said Gary Zoubek, UNL Extension educator in York County. Farmers, particularly those with high organic matter in their soils, need to encourage their soil test laboratories or crop consultants to take into account the nitrogen from soil organic matter when recommending nitrogen for corn and other grain crops.

When nitrogen rates are based on a realistic yield goal and credits for soil nitrates, previous legume crops and potential nitrogen release from organic matter, nitrogen fertilizer recommendations are reduced and nitrogen fertilizer is saved. Take this step for an added profit of $18.75 per acre, said Aaron Nygren, extension educator in Colfax County. That's based on 28 pounds of nitrogen saved at 67 cents per pound per each additional percent of organic matter in the soil for a field with a yield of 200 bushels.

2) Eliminate unnecessary use of phosphorus, potassium and sulfur. These nutrients are essential and must be adequately supplied to crops if soil levels are limited to ensure optimal yield, said Richard Ferguson, UNL soils specialist. Adding fertilizer containing these nutrients, as well as nitrogen, iron, zinc and occasionally sulfur, is sometimes necessary for optimal yield in Nebraska crops. A soil test is the best way to determine if the availability of these nutrients is low enough to require fertilization. Not applying phosphorus, potassium and sulfur when soil nutrient availability is adequate can save up to $100 per acre.

3) Credit residual soil nitrate-nitrogen. Since the climate across Nebraska ranges from semi-arid to semi-humid, there can be significant residual nitrate-nitrogen in the root zone from the previous year. This nitrogen typically results from unused fertilizer and nitrogen mineralized from soil organic matter, said Gary Hergert, UNL nutrient management specialist at the Panhandle Research and Extension Center at Scottsbluff.

It is profitable and an environmentally sound practice to routinely sample soil for residual nitrate-nitrogen and adjust the calculated nitrogen recommendation accordingly. If Nebraska farmers would save, for example, 36 pounds of nitrogen costing 67-cents per pound, this could save them $24 per acre, Hergert said.

4) Give proper nitrogen credit for legumes in corn and sorghum rotations. UNL and other land-grant

university research clearly demonstrates that farmers can safely reduce their nitrogen input for corn following a legume crop, such as soybeans. UNL recommendations for corn following soybean indicate that there can be a credit of 45 pounds of nitrogen per acre for non-sandy soils and 25 pounds of nitrogen per acre for sandy soils unless the previous soybean yield was less than 30 bushels per acre, Nygren said. Nitrogen fertilizer recommendations for corn following alfalfa can be reduced by 90 to 150 pounds on fine textured soils and by 40 to 100 pounds on sandy soils depending on the alfalfa stand.

Based on an average credit of 45 pounds of nitrogen after soybeans and 120 pounds of nitrogen after alfalfa at 67 cents per pound of nitrogen, this adds up to a $30.15 to $80.40 per acre savings.

The Nebraska Soil Test (**http://soiltest.unl.edu**) Web site also has more information, including fertilizer recommendations for all crops. The Corn Nitrogen Calculator (**http://soilfertility.unl.edu**) is available on the Web.

More information, resources and tables on this topic can be found on UNL's Surviving High Input Costs (**http://cropwatch.unl.edu/survivinghighinputcosts.htm**) Web site or at CropWatch (**http://cropwatch.unl.edu**), UNL Extension's crop production newsletter.

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