Applying Fertilizer and Lime to CRP Land

SUMMARY

Test soil to determine how much fertilizer and lime to apply to CRP land.

Soil Sample First

The soil fertility status may have changed since establishment of the CRP sod crop. Soil testing is the only method to determine nutrient needs for the following crop. Take soil cores to a 6-inch depth, including separate samples from each of the major soil types in each field, and a soil sample from every 10 acres in a field. See Iowa State University Extension publication Pm-287, *Take a Good Soil Sample,* for more specific information on soil sampling. Have soil samples analyzed for phosphorous (P), potassium (K), and lime needs.

Phosphorus and Potassium Fertilizer Application

If the CRP land is to be chisel plowed and phosphorus and/or potassium fertilizers are to be applied broadcast, the fertilizer should be applied before the tillage operation. This is particularly important if the soil test is low or very low for either nutrient. For this situation, manure would be a very suitable source of these nutrients.

If the CRP land is to be no-tilled and the soil test is very low for phosphorus or potassium, in addition to broadcast application a band application is recommended. This can be knifed into the soil 4 to 6 inches deep prior to planting or applied 2 inches to the side and 2 inches below seed level (2 x 2 placement) at planting. A broadcast application on the surface of very low testing soils can be very inefficient during an extended dry period of the growing season. If the soil test for phosphorus and potassium is low or optimum, the method of application is not as important. If the CRP sod crop has left a large amount of surface residue, a 2 x 2 starter band is suggested.

Nitrogen Fertilizer Application for Corn

Because of the large amount of plant residue, whether it be root mass or above ground plant material that will be decomposing, soil nitrogen and some of the fertilizer nitrogen will be immobilized (tied-up) by organisms doing the decomposing. Until the energy (food) supply is used up, the immobilized nitrogen will not be available for plant use.

A broadcast application of fertilizer nitrogen will be more susceptible to immobilization than a knifed-in or injected band application regardless of the form of fertilizer nitrogen. A surface broadcast and non-incorporated application of urea or solutions containing urea is not recommended because of the potential volatilization loss from the urea source. This potential loss is greatest when large amounts of plant residue are on the soil surface such as in a no-tillage situation.

The preferred approach for meeting the nitrogen needs of the corn crop includes two steps: (1) apply one-half to two-thirds of the estimated amount of needed fertilizer nitrogen before or at planting and (2) use the late spring soil nitrate test to determine the amount of additional fertilizer nitrogen needed, if any, and sidedress it. Use of the soil nitrate test can be valuable if manure has been applied to meet any phosphorus and potassium needs. See ISU Extension publication Pm-1714, *Nitrogen fertilizer recommendations for corn in Iowa.*

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LEOPOLD CENTER

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Soybean Inoculation

Because it will not be known if sufficient rhizobia are present to nodulate soybeans, applying an inoculant at planting is recommended. If nodulation does not occur, apply nitrogen fertilizer, which is the only good rescue treatment.

Limestone Application

If the soil test indicates a need for limestone to neutralize soil acidity, limestone should be applied and tilled into the soil, preferably by moldboard plowing or by chisel plowing and a deep disking. Limestone that is left on the soil surface and not tilled into the soil will raise the pH of the soil surface, but it moves very slowly in the soil. The recommended amount of limestone to apply is adjusted for the depth of tillage, which determines the volume of soil to be neutralized. Be sure the depth of tillage is stated on the soil sample information sheet when sending the soil samples to a soil testing laboratory. If the field is to be no-tilled and no cultivation for weeds is to be done, state a 3-inch soil depth.

For More Information

To learn more about management and decisions regarding land being removed from CRP, see the other bulletins in this series.

CRP-1 Life After CRP—Decisions, Decisions!
CRP-2 Lease Alternatives for CRP Land
CRP-3 Tillage Options After CRP
CRP-4 Livestock Watering Systems for CRP Land
CRP-5 Applying Fertilizer and Lime to CRP Land
CRP-6 Resource Inventory Guide
CRP-7 CRP—Characteristics and Perceptions
CRP-8 Fencing Systems for CRP Land
CRP-9 Evaluating Resources and Setting Goals
CRP-10 Converting to Pasture or Hay—Evaluating Current Vegetation
CRP-11 Converting CRP Land to Pasture—Managing Weeds and Fertility
CRP-12 Converting to Pasture or Hay—Repairing, Replanting CRP Land
CRP-13 Converting to Pasture or Hay—Forage Seeding Mixtures
CRP-14 Adams County CRP Research and Demonstration Project

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