

Corn Fertility Update – Spring 2010

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Many corn fields on the Eastern Shore and in Eastern Virginia are showing possible nutrient deficiency symptoms this spring with “yellowing” and stunted corn plants. Some of the deficiencies we have seen include nitrogen, boron, magnesium, sulfur, and zinc. Heavy, leaching rainfall this past winter and dry conditions this spring have aggravated deficiency issues and corrective action may be necessary. Rainfall patterns for the past year and 30-year averages are illustrated in Figure 1 for the Richmond area and Figure 2 for the Eastern Shore. Deficiency symptoms range from minor to severe and are highly dependent on previous fertilizer sources used, soil texture, soil pH, and weather. Therefore, no blanket fertilizer recommendation for all fields can be made. Fields should be scouted early to catch problems before yield potential is lost.

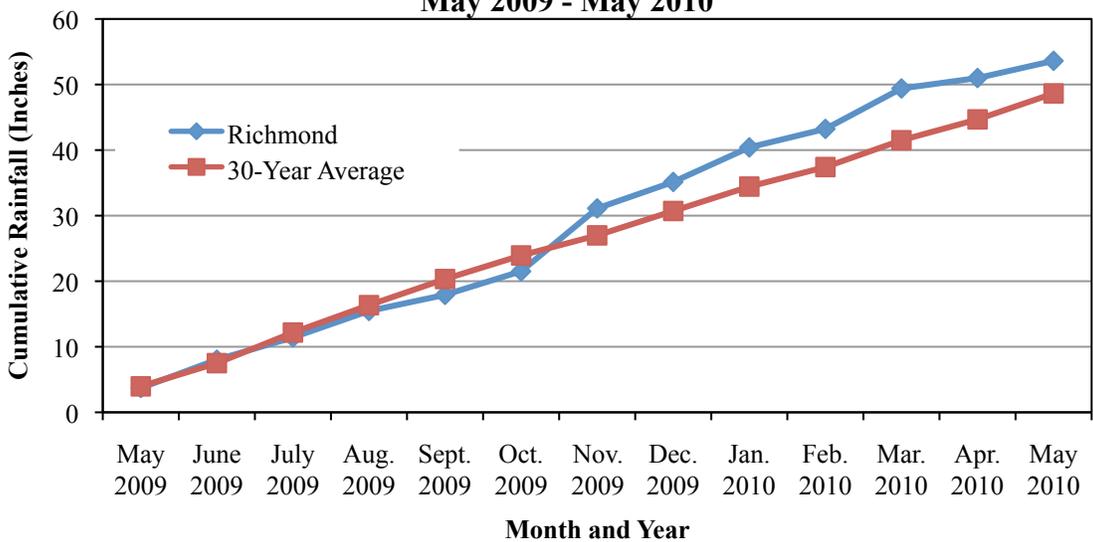
Be sure to take a copy of your soil test to the field when you are scouting visually, as it can offer hints to what may be the underlying deficiency issue. For instance, zinc is often recommended on soil tests but not applied, so you should first look at these nutrients for answers. Care should also be taken when using visual deficiency symptoms to diagnose crops. Visual characteristics are a start, but may be misleading as many nutrients exhibit similar symptoms that can easily be confused. For instance, many fields appear stunted and yellow and are diagnosed as a nitrogen deficiency when in fact sulfur deficiency is the main culprit. This scenario has been especially true this spring as above normal leaching rains has moved soluble nutrients, such as nitrogen and sulfur, below the surface soil horizon.

The best way to diagnose nutrient deficiencies is to use tissue and soil testing. Many private labs can email or fax results back within a day or two after sample submission. For around \$25, tissue tests will give exact nutrient concentrations and pinpoint what nutrients may be in short supply. Soil tests will show what the plant is actually able to secure from the soil in this growing season. For more accurate recommendations, submit a soil sample along with your tissue tests. For corn less than 12 inches tall, take 30 samples from the whole aboveground portion across the entire field. Between 12 inches tall and tassel, sample the upper-most fully developed leaf (leaf has a “collar”). Overall, the time and money it takes to test your corn is small compared to the fertilizer inputs you have already or will potentially invest.

To correct nutrient deficiencies, macronutrients (nitrogen, phosphorus, potassium, magnesium, and sulfur) and micronutrients (zinc, boron, and manganese) important for corn production can be mixed into your side dress application when plants are knee-high. For farmers not applying side dress applications or are past this stage, foliar feed applications can be made and possibly incorporated with other maintenance sprays. Be sure you consult your tissue test recommendations, Virginia Cooperative Extension, or your local fertilizer dealer for recommended rates and products. Remember – Too much is not always better and source is important. Some nutrient sources have the potential for leaf burn which is not desirable for a plant already under nutrient stress. The correct source and rate are critical to efficiently correcting the nutrient deficiency.

As always, the best way to correct a deficiency is to avoid it in the first place. All fields should be routinely soil sampled and fertilizer applied based on your soil's yield potential. Using Virginia Tech's soil testing laboratory, your soil's yield potential will automatically be calculated if you put your soil series on the soil sampling sheet instead of yield goal. Proper nutrient management can save more than headaches, it can increase yields by determining the correct nutrients and amounts of each needed on a field specific basis, reduce applications of unneeded nutrients, and importantly, increase profits. For more information on proper fertilizer use and placement in field corn, consult Virginia Cooperative Extension publications #424-027 (nitrogen and phosphorus), #452-702 (macronutrients), and #452-701 (micronutrients).

**Fig. 1. Richmond Cumulative Rainfall - 1 Year
May 2009 - May 2010**



**Fig. 2. Eastern Shore Cumulative Rainfall - 1 Year
May 2009 - May 2010**

