

Identifying *Plant* Deficiencies

Dunn: Learn To Spot Signs Of Nutrient Shortages In Plants

BETTY VALLE GEGG-NAEGER

MidAmerica Farmer Grower

PORTAGEVILLE, MO.

A program on recognizing nutrient deficiencies and toxicities in the field crops was presented recently by David Dunn, manager of the Soil Test Lab at the University of Missouri Fisher Delta Research Center.

Dunn focused on the location in the plants where these various nutrient deficiencies are expressed. He suggested where to look for a particular nutrient deficiency.

“For nitrogen and potassium, the place to look for symptoms first is in the lower part of the plant,” he explained. “That’s because these elements are relatively mobile in the plant and the plant will scavenge the available nutrients from previously existing leaves and transport them into leaves that are trying to grow.”

The main elements that express themselves at the top, first are magnesium, zinc, and sulfur. Some of these can be confusing because they exhibit the same general symptoms, but a close look in detail will show the differences.

A common corn problem is purple corn in the spring. The purple color usually is a result of phosphorus deficiency. But what is causing the phosphorus deficiency? Is it because there isn’t enough phosphorus in the soil or is it because the plant is unable to access the available phosphorus? Phosphorus is not very mobile in the soil. For plants to access it roots need to grow into areas that contain phosphorus. If the roots aren’t able to grow for any reason, they can’t access the phosphorus and the plant will turn purple.

“Soil testing is the key to correcting purple, phosphorus deficient corn in the spring,” he said. “Test the soil and find out if there’s adequate phosphorus underneath the plant. If there is adequate phosphorus, then just assume the plant will grow into it. If there is inadequate phosphorus there, you need to add more as soon as possible.

“Another problem is yellow cotton or, as I like to call it ‘yella cotton,’ in the field. This can be the result of two different processes. It can be nitrogen deficiency, or it can be sulfur deficiency. Nitrogen deficiency tends to express itself at the base of the plant, sulfur deficiency tends to express itself at the top of the plant. These are not iron fast, every time rules, and sometimes it can be confusing. Here tissue testing is the key to identifying which deficiency it is.”

In cotton, sulfur is needed to maximize protein production. If there’s not adequate sulfur in the plant, it will not be able to utilize the available nitrogen. This will cause nitrogen levels to increase in the plant tissue. Adding more nitrogen will not help the problem.

“The key to understanding, is to take tissue samples,” Dunn explained. “If you take the tissue sample and you find there is a high level of nitrogen in the plant tissue, that means that it’s probably a sulfur deficiency. If it comes back deficient in nitrogen it’s usually nitrogen deficiency.”

“Another quick in-field test you can do to an area or to small plots in the field is to apply a



David Dunn, manager of the Soil Test Lab at the University of Missouri Fisher Delta Research Center discusses recognizing nutrient deficiencies and where to look for a particular one.

high amount of ammonium sulfate to one area and ammonium nitrate to a second area. Then see which one greens up first,” he said. “If the ammonium sulfate area greens up first, it’s a sulfur deficiency. If the ammonium nitrate area greens up first, it’s a nitrogen deficiency.”

Identifying nutrient deficiencies in a field is key to producing good yields. Once you have this information in hand it’s possible to correct these issues. Tissue testing and soil testing is a good way to back up visual identifications of problem areas in your fields.

BETTY VALLE GEGG-NAEGER: Senior Staff Writer, MidAmerica Farmer Grower



Link Directly To: **CACHE RIVER**

syngenta®

Link Directly To: **SYNGENTA**



Link Directly To: **VERMEER**