

# Nutrient Deficiencies Concern Growers

URBANA, ILL.

**H**ot, dry weather conditions are bringing out the worst in many fields across the Midwest. Fabian Fernandez, University of Illinois Extension specialist in plant nutrition and soil fertility, said potassium deficiencies have become the most noticeable.

However, is what you are seeing in the field worth worrying about? Fernandez offers a few reminders and tips for growers.

- Adequate soil fertility levels. If the soil does not have adequate fertility, correct the problem by applying adequate levels of fertilizer. If severe deficiencies occurred this year due to the dry conditions or if the problem does not go away after some precipitation, Fernandez said it's a good indication of low fertility in that field.

Looking at previous soil test information, previous fertilization rates, and yield history for the field, along with additional soil testing, is the best way to determine if and how much phosphorus or potassium may be needed. Of course, it is unlikely that applying phosphorus or potassium now will help this crop, but if the fertility of the field is a problem, correcting the problem before next year should be a pretty high priority this fall after harvest, he said.

- Soil water content. Not only is water critical to supply the basic needs of the crop, but also to dissolve nutrients and make them available to the plant. Temporary nutrient deficiencies can be observed when the surface layer of the soil becomes too dry and the root system of the crop is small and shallow.

This year, soil conditions were fit for crops to develop an extensive root system, he said. This helped crops draw water deeper in the soil during dry conditions. Keep in mind that new roots tend to be the most important roots for nutrient uptake since they are more active than older

roots and are growing into "new soil" where nutrients have not yet been removed. However, roots do not grow into dry soil and will slow down their activity under dry conditions. Because of this, some crops might be showing some nutrient deficiency.

- Soil compaction. Soil compaction can reduce the volume of soil, including nutrients and water, which can be accessed by the plant because compaction can limit or completely restrict root penetration. If patterns of a nutrient deficiency develop following old crop rows or wheel traffic, Fernandez said it's likely the field is experiencing soil compaction. At this time, nothing can be done to correct the problem, but it's important to break that compaction after harvest this fall if soil conditions are fit to do tillage.

- Diseases and pests. Diseases and pests compete for nutrients, affecting physiological capacity (such as reduction in photosynthesis rates), and diminishing root mass and root surface area that is important for nutrient and water uptake. Also, weed competition can be a very large problem for crops, especially when resources such as water and nutrients are limited. Making sure fields are weed-free from the early season allows the crop to grow without competition and to have all the water and nutrients that are in the soil available to them, he said.

"While there is very little that can be done at this point to correct nutrient deficiencies, besides a good rainfall, the development of nutrient deficiencies in some fields or parts of fields should be noted to determine if there is something that needs to be done to correct the problem for next year," Fernandez said. Δ



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