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### SCOUTING FOR NUTRIENT DEFICIENCIES

**When plants begin to look a bit ragged and not quite as vigorous as you would expect, they are likely experiencing some kind of stress that is limiting growth.** Growth problems may be due to a number of factors, including pests, drought, or lack of adequate nutrition. To solve the problem, it is necessary to first diagnose it properly. It is relatively easy to check for disease and insect damage, or adequate soil moisture. Nutrient deficiencies can be more difficult to diagnose at first, but a quick review of terminology will help you know what to look for and how to describe it.

**Chlorosis:** Indicates a yellowing of the leaf tissue. Since many nutrients are involved in chlorophyll formation and photosynthesis, many nutrient deficiencies can cause chlorosis symptoms. In general, chlorosis of the older leaves may be caused by a shortage of “mobile” nutrients such as nitrogen, potassium, and magnesium. Chlorosis of the younger leaves may indicate a deficiency of an “immobile” nutrient such as sulfur or iron.

**Interveinal chlorosis:** When the leaf tissue turns yellow while the vein itself remains green. In grasses, this is commonly called “striping.” Many of the micronutrient deficiencies show this symptom.

**Firing:** Leaf yellowing may be followed by the rapid death of the tissue as the symptoms move up the plant. The dead leaf tissue has been described as “scorched” or “fired”.

**Necrosis:** Severe nutrient deficiency will result in the death of plant parts or perhaps the entire plant. The dead tissue that remains on a still-living plant is called necrotic tissue.

**Abnormal color:** Lack of adequate nutrition will cause some plant leaves to produce abnormal color compounds. This will vary between plant species...and some plants do not show any distinct symptoms. In addition to chlorosis, some plant nutrient deficiency symptoms include red and purple (phosphorus, magnesium), or sometimes a total bleaching of color (iron).

**Stunting:** A lack of any of the essential nutrients will result in decreased growth and yield. This depressed growth may shorten the height of many crops and result in smaller harvests. Stunting is a general term that compares the decreased growth with plants that are not limited by a shortage of proper nutrition. Lack of adequate phosphorus frequently results in no visual symptoms other than overall stunting.

**While visible plant symptoms can be a useful guide for checking on crops, once they are noticeable, the plant growth is already impaired and yield is being lost each day the deficiency continues.** Additionally, some plants usually do not show distinct deficiency symptoms. For example, alfalfa rarely shows phosphorus deficiency symptoms, although it responds vigorously to adequate fertilization and nitrogen fixation is severely limited with phosphorus-limited alfalfa.

**Do not wait until visible symptoms of deficiency show up before you plan your crop nutrition program.** But when you are in the field, keep your eyes open for plants that do not look quite right and then figure out what is the problem. Use visual observations to back up your on-going program of soil testing and plant analysis.

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