

Identifying Phosphorus And Potassium Deficiencies

Are you able to identify nutrient deficiencies from plant symptoms in the field? If not, it's time to go out and gather information from your crop adviser to help interpret the symptoms in your crop. A good knowledge of nutrient deficiency symptoms is required as much as an understanding of water, temperature, salinity, and pest stresses.

Phosphorus and potassium move in the soil mainly by the short-range process of diffusion. Cool soils and dry conditions can slow the diffusion process, reducing the ability of the soil to supply these nutrients to the plant. In addition, plant roots grow slowly in cool soils, further minimizing the contact between the plant and soil. These are reasons seed placement of phosphorus and potassium fertilizer can be critical to overcoming early season deficiencies.

Phosphorus deficient cereal seedlings generally display poor tillering, stunted growth, and yellowing of the lower leaves. Many farmers have seen this dramatic affect on growth in their fields when they either ran out of phosphorus fertilizer or had a mechanical failure while seeding. A severely deficient seedling may display a dark green to purplish tinge on the margins of lower leaves. Later in the season significant delays in maturity can occur as a result of an imbalance between nitrogen and phosphorus. This is frequently reported when phosphorus rates are reduced to cut fertilizer inputs, while nitrogen rates are maintained at a high level.

Early potassium deficiency usually appears as chlorosis (yellowing) of the older plant leaves. Potassium is a mobile nutrient in the plant. As a consequence, when the roots are no longer picking up a balance of potassium to the other nutrients, the plant will start to take potassium from the older leaves, transferring them to younger plant tissue. This is what distinguishes a potassium deficiency from sulfur (only upper, new leaves) and nitrogen (all leaves). Alfalfa, a large consumer of potassium, displays small white spots on the lower leaflets. If the deficiency persists, this chlorosis is followed by necrosis (death) of the leaf tissue starting at the margins of older leaves.

Don't forget tissue testing! If you are suspicious of a nutrient deficiency, be sure to do some in-season tissue testing to build your case for corrective action. Remember to sample and compare both good and problem areas in the field.

Field scouting, soil and tissue testing, and monitoring for nutrient deficiencies are useful tools for crop management. Remember, understanding the signs and symptoms of nutrient deficiencies is critical to taking action and minimizing their impact on yield potential.

Source: Potash and Phosphate Institute.

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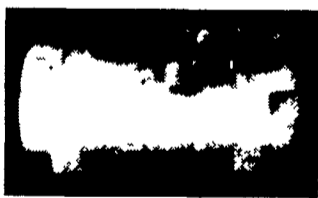


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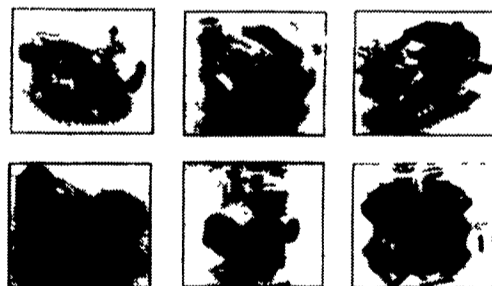
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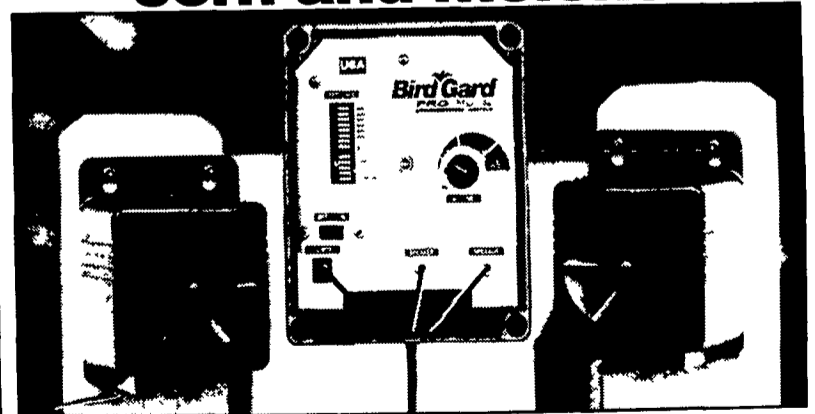


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