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TISSUE TESTING CAN SAVE YOUR CROP

The use of tissue testing and plant analysis dates back to the nineteenth century. Since that time, considerable research has been devoted to refining this tool for assisting farmers to efficiently manage crops. The relationship between nutrient concentrations in plant tissue and the ultimate yield or quality is fundamental for using this information. The general relationship between plant yield and tissue nutrient concentrations is shown in Figure 1.

Plant analysis is commonly used for many valuable purposes. Some of the uses of plant analysis include:

- Predicting potential deficiencies in current or future crops;
- Diagnosing nutrient deficiency, toxicity, or imbalances;
- Predicting the need for various essential nutrients at critical growth stages;
- Validating the effectiveness of the current fertility program;
- Assessing nutrient concentrations in tissue to create nutrient budgets and quantify nutrient removals;
- Determining the value of plant material as an animal feed.

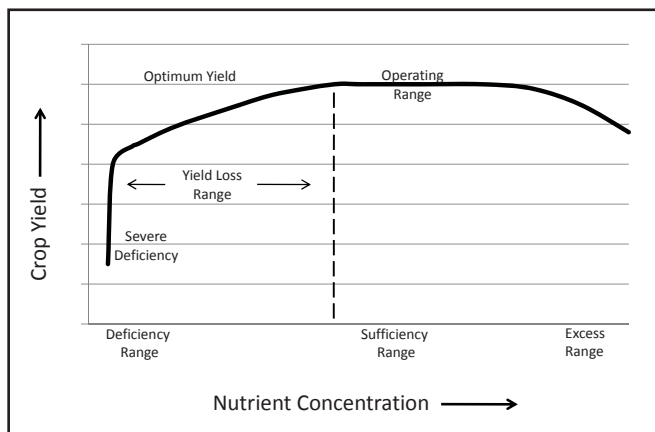


Figure 1.

Monitor Nutrient Uptake. Avoiding nutrient deficiencies is the best way to maintain yield and quality. A periodic check of plant nutrient concentrations during the growing season can be a helpful way to avoid deficiencies and imbalances before they occur.

Diagnose Deficiency. Since all fields vary in soil properties across the landscape, it is natural that plant growth will also vary across the field. It is likely that there will be differences in soil texture and clay content, soil rooting depth, drainage, organic matter content, etc. in the field. Since all of these factors can influence nutrient availability for crops, it is expected that the nutrient supply will not be uniform in the field. When deficiencies first become visible, it is advisable to take plant tissue samples from both the problem areas and from areas of the field that appear normal. The practice of sampling tissue from both deficient and healthy plants makes it easier to diagnose the nature of the problem.

Plan Nutrient Programs. Regular tissue testing is useful as a guide for future nutrient management decisions. For example, if magnesium concentrations are low in the plant tissue, management decisions can be made to correct this situation in the future. It may include addition of soil amendments, fertilizers, foliar nutrition, or possibly switching to an alternate crop.

When beginning a tissue testing program, be certain to consult with a specialist to get the samples taken at the appropriate stage of growth, at the correct position on the plant, and properly handled for delivery to the analytical lab. If the samples are not taken correctly, it will not be possible to interpret the laboratory results or know how to perform corrective action. Building a history of plant nutrient concentrations over years can also be valuable for spotting emerging problems before they cause yield or quality to decline.

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