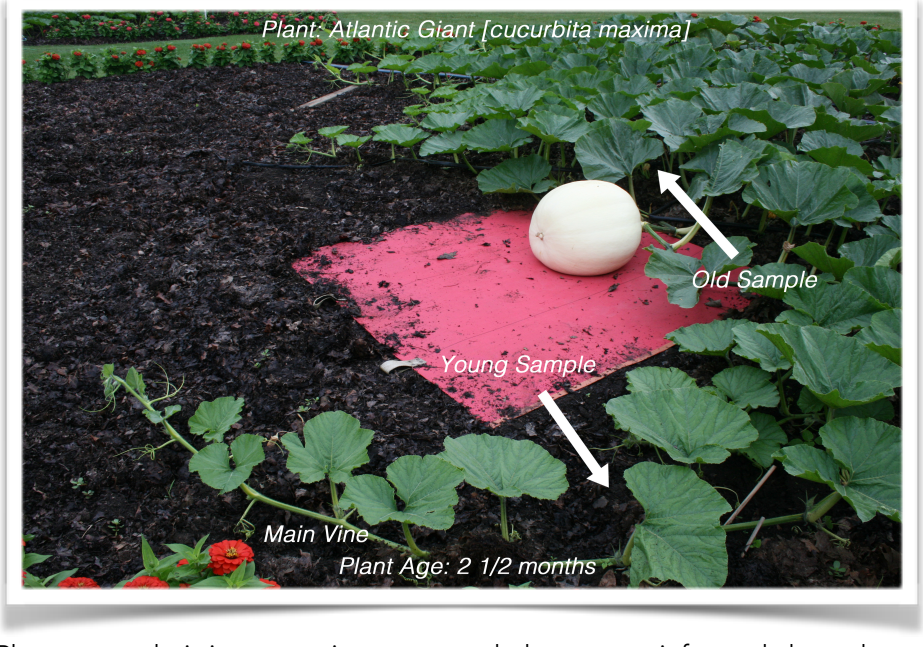
# ADVANCING ECO AGRICULTURE

Leading Regenerative Farming

## PLANT SAP ANALYSIS

# What Is Plant Sap Analysis?

Plant sap analysis is a breakthrough way to detect mineral and nutrient deficiencies in plants 3-4 weeks before any visible symptoms, and two weeks before standard tissue testing. This creates the opportunity to apply the precise amount of a needed nutrient before a deficiency manifests as a disease or weakness. Plant sap analysis allows the farmer to supply plants with the minerals and nutrients needed for optimum health and growth throughout the entire growing and harvesting season.




Plant sap analysis is a proactive system to help you stay informed about the health and nutrition of your crop through the growing season.

With this consistent sampling regimen, you will be able to detect nutritional imbalances much earlier than with typical dry matter tissue analysis, and manage your crops' nutrition before it begins to demonstrate any challenges.

# How Do I Start?

When you order your sap samples for the year, we will help you complete a thorough sample information form, which will include field ID, crop, variety, and number of sample sets needed for that field through the year. (A sample set is two analyses, one for old leaves, and one for new leaves from the same plants.)

The lab will generate and supply a kit with barcoded labels and sample bags. Each set of labels will be for a specific field and crop based on the information you supply. The use of barcoded labels enables us to slash analysis reporting time and send you reports very quickly.

You will use the kit to collect and send your samples in to the lab on a regular, consistent basis.

When samples are received at the lab, the barcodes are scanned and all the field and crop information is populated automatically. As soon as the sample analysis is complete, excel and pdf reports are generated and automatically emailed to the people you specify on the label request form.

The recipients can include you, and your farm consultant or advisor, who will help you interpret the data and determine what inputs, if any, are needed.

Sap analysis reports include twenty-three data points, all the standard macronutrients and micronutrients, as well as multiple forms of nitrogen, pH, EC, sugar content, and extra traces such as molybdenum, selenium, cobalt, silicon, and others.

With the purchase of sap analysis you will gain access to data graphing software where you can track your results by nutrient, by crop, by variety, by field, by date, or any combination of the above, and generate your own reports and graphs to track nutrient flow during the season.

# How To Collect And Ship Samples

**Sample size:**

- 32 oz ziplock bag by volume
- 120 grams
- 0.25 lbs

**Preparing the leaf samples:**

- Pack clean,dry leaves. When the leaves are wet because of rain or dew,gently pat them first with an untreated tissue.
- Pack the young and old leaf samples separately in separate bags, enclosed with your packet.
- Remove excess air to prevent evaporation



**Packing the leaf samples:**

- Ship to Crop Health Labs via FedEx,UPS,or USPS guaranteed one or two day delivery.
- Ship in a sturdy box with ice packs.
- Place old leaf samples in one ziplock bag,and apply the corresponding "old growth" label to the bag. Repeat for new growth.



**Shipping the samples:**

- Place the barcode--labeled bags into the FEDEX Box
- Place the shipment label inside the clear plastic sleeve (if applicable).
- Ensure the box is sealed well.
- Collated shipments are sent to:

  **Crop Health Laboratories**
  93 Main Street
  Bellville, OH 44813

# Use Plant Sap Analysis To

- Detect deficiencies up to 4 weeks before any visible symptoms
- Apply the precise amount of a needed nutrient
- Supply plants with the minerals and nutrients needed for optimum health and growth throughout the entire growing and harvesting season

## Work smarter by applying only what your plants will use

- Monitoring a crop with sap analysis identifies indicators of nutrient crises before they occur, four to six weeks before tissue analysis. This data allows for proactive, prescriptive, nutritional supplementation.
- The power of sap analysis is the ability to track nutrient flow throughout the growing season, and compare levels to established target values at each stage of development.
- Results are bolstered yields and no wasted inputs.
- Analysis equips growers with time to address nutrient problems before they manifest as compromised vitality or yields. It is a powerful tool to manage and adjust fertility strategies quickly and precisely, as it captures the exact nutrient uptake before metabolism in plant processes.

# Managing For Plant Health And Yields

Farming is a high stakes profession with many constantly changing variables. Success can be dependent on monitoring these variables that directly influence plant health. We need this information to make good decisions. Really, we can only manage well what we can measure.

Measuring and monitoring crop nutrition requirements can be a key difference between an average crop and an exceptional crop. If we don't track nutritional shortfalls and learn what is happening over the course of the season, it is like having one year of experience thirty times, instead of having thirty years of experience. If we do not understand the reasons for crop success or failure, there is no way we can improve our decisions in the future.

The powerful information that plant sap analysis technology can provide can be fully unleashed only by tracking nutrient flow in plants throughout the growing season at different growth stages. By monitoring a crop throughout the entire growing season we can clearly see when nutrient shortfalls occur, and how those nutrient shortfalls are connected with specific growth stages and/or weather conditions. This information can help us manage very proactively in the future.

Monitoring consistently is imperative to get the greatest benefits from this technology. Samples need to be collected consistently and in a timely sequence to map nutrient flow. It is really important that samples be collected separately from both new leaves and old leaves every two weeks. Collecting only old leaves or only new leaves gives us bad information, which is worse than no information. Waiting until disease or insect challengers begin expressing themselves is the equivalent of a post mortem, it is too late to fix the problem at that point.

A solid management strategy is to sample consistently every two weeks, which can give you the information to put you solidly in the driver's seat and give you control over plant health and nutritional integrity.

# Testimonials

Plant sap analysis is easy to use. People think they're going to need a degree in agronomy or something, and that it's going to be complicated and difficult, but it's not. It's very easy to do, and the return on investment is outstanding.
**~Mike Omeg, Omeg Family Orchards**

Sap analysis takes the guess work out of fertilizing crops. Instead of applying all the nutrients and hoping for balance, sap analysis lets you see exactly what your crop needs and apply nutrients accordingly. If you're interested in reducing the use of chemical inputs, sap analysis is a huge benefit.
**~Sam Zook, Keystone BioAg**

"Sap analysis enables us to accurately and consistently monitor the minerals in the plant sap. This allows us to modify the foliar nutrients precisely to the plant's specific needs before a nutrient deficiency ever shows up. Analyzing both the young and the old leaves comparatively reveals nutrient mobility and function within the plant, allows us to fine-tune plant nutrition on a profound level, and realize exciting advantages to agronomy.".
**~James Bauman**

I've been able to reduce the apple scab in my orchard using targeted nutrient inputs made possible with sap analysis. I wouldn't work with an orchard without using plant sap analysis.
**~Melvin Peachey**

Call your consultant or 800-495-6603 ext. 344 to order your plant sap analysis for 2016!

Jenny Garley, Research Specialist at AEA, pulling sap samples from strawberries in CA.