

# Crop-Tech Consulting Inc.

## 2023 Beyond the Basics

5-part series on the 4R systems approach to soil tests, fertility, and nutrient management.

11 CEUs  
applied for

Session 1  
11/28

The Foundation of a Good Soil Test

Session 2  
11/30

- Reading Between the Lines on Your Soil Test
- A Deep Dive into Phosphorus

Session 3  
12/5

- Drilling Down on Calcium and pH
- Sifting out Lime Surprises

Videos are released  
on Tuesdays and  
Thursdays

Session 4  
12/7

- The ABCs of Potassium
- All Things Nitrogen

Session 5  
12/12

- Understanding the Soil Ecosystem

To Register :

- ⇒ Register at: <https://www.croptechinc.com/BeyondTheBasics>
- ⇒ You will receive an email with a username and password to log into the viewing site
- ⇒ Videos will be on a metered release at 12:01 AM on 11/28, 11/30, 12/5, 12/7, 12/12
- ⇒ You can submit questions on the viewing site and a Q & A video will be posted after 12/12 answering questions that were sent in that didn't already get answered.
- ⇒ Your log in and password will get you access to the material through December 31st, 2023.



# Beyond the Basics



## Session 1 – Released: Tuesday, November 28, 2023



### The Foundation of a Good Soil Test

- ⇒ Major schools of thought for how to pull samples and write recommendations
- ⇒ What method Crop-Tech uses and why
- ⇒ What the soil test can tell you
- ⇒ Why we build zones in a field, and how that plays into a systems approach
- ⇒ Using layers of data to build your zones (aerial, LiDAR, yield maps, soil lines)
- ⇒ The importance of knowing before making a recommendation:
  - \* How the sample was pulled
  - \* When the sample was pulled
  - \* What lab ran the test, and what extraction method was used
  - \* What units are the results reported in



## Session 2 – Released: Thursday, November 30, 2023



### Reading Between the Lines on Your Soil Test

- ⇒ How to read the values reported and how to interpret them to make the best management decisions regarding:
  - \* Organic Matter
  - \* Cation Exchange Capacity
  - \* P1 and P2
  - \* Base Saturation
  - \* pH

### A Deep Dive into Phosphorus

- ⇒ Availability in the soil, and the plant uptake process
- ⇒ What role it plays in the plant
- ⇒ Phosphorous tie-up and what that changes in terms of management
- ⇒ All things starter fertilizer



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## Session 3 – Released: Tuesday, December 5, 2023



### Drilling Down on Calcium and pH

- ⇒ Availability in the soil, and the plant uptake process
- ⇒ What role it plays in the plant
- ⇒ How to use the pH values on a soil test to decide when, how much, and what type of lime to apply
- ⇒ What can cause false or varying pH results

### Sifting out Lime Surprises

- ⇒ How to evaluate a lime source
- ⇒ Vocabulary for understanding acronyms on a lime sample
- ⇒ How lime quality standards differ between states.
- ⇒ Why a good spread pattern matters and overcoming obstacles to achieve it.



## Session 4 – Released: Thursday, December 7, 2023



### The ABCs of Potassium

- ⇒ Availability in the soil and what affects it
- ⇒ Plant uptake process and what impedes it
- ⇒ What role it plays in the plant
- ⇒ What causes a  $K^+$  deficiency, how to identify it, and what it does to the plant
- ⇒ Effects of an abundance of  $K^+$  creating imbalances in the soil

### All Things Nitrogen

- ⇒ Different sources: Ammonium Nitrogen ( $NH_4^+$ ), Nitrite ( $NO_2^-$ ), Nitrate ( $NO_3^-$ )
- ⇒ The conversion process between the different forms, and factors that influence it
- ⇒ What source the soil microbes like best, and what the plants use most efficiently
- ⇒ How and when to protect against volatilization and leaching
- ⇒ Nitrogen Extenders
- ⇒ Illinois Soil Nitrogen Test (ISNT) and how we use it to variable rate Nitrogen
- ⇒ VRT Nitrogen and it's affect on soil health and organic matter

# Beyond the Basics

Session 5 –Released: Tuesday, December 12, 2023

## Understanding the Soil Ecosystem

- ⇒ Examining soil microbes' role in growing a crop
  - \* Heterotrophs vs autotrophs
  - \* Bacteria and fungi, small particles with big roles
  - \* Stages of organic matter
  - \* The carbon cycle and the importance of the carbon to nitrogen ratio
  - \* Nutrient cycling-what is involved and when do you see returns

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