

SPECIALTY CROPS

Agronomist Onboarding Guide



If you are an agronomist, PCA, or CCA who wants to use soil health data from Trace Genomics to build trust, make more informed management decisions, and enhance your service offerings, this guide will help you understand and explain soil DNA testing to your growers.

Contents

Welcome	3
Introducing Trace Genomics to your Growers	4
▶ Explaining the Grower Benefits	5
▶ Explaining the Technology	6
▶ Explaining the Process	7
Sampling Best Practices & FAQs	8
▶ Sampling Guide	8
▶ Best Practices	8
▶ Frequently Asked Questions	8
Soil Health Report FAQs	9
Customer Support	10
Resources & Success Stories	10

Welcome

We're so excited you've decided to work with Trace Genomics. Most people don't know that the soil beneath our feet is home to the world's greatest biodiversity. Over 10 trillion species of soil bacteria and 100 billion species of soil fungi make up the soil microbiome. A healthy microbiome can lead to better root systems, faster growth, and crops that are more resilient to drought and disease. On the other hand, soil pathogens can lead to disease and crop loss. Promoting a healthy microbiome and proactively addressing pathogens is key to a good yield.

By using DNA sequencing to analyze both the beneficial microbiome and the pathogens, our soil test will give you insights into soil health that you can share with your growers when making a farm management plan. Your growers will love the reduced risk of soil-borne disease, healthier plants, and increased yield, and you'll be able to sleep easy knowing that you made planting and product recommendations based on cutting-edge data.

This guide will walk you through the sampling process and address common questions we hear from agronomists, PCAs, and CCAs who are new to Trace Genomics. The customer experience is really important to our team, and we want you to know how happy we are that you have decided to work with us. If you have questions or feedback along the way, you can always reach us at support@tracegenomics.com. Let's dig in.



Introducing Trace Genomics to your Growers

We know that explaining the benefits of testing soil DNA can be challenging. Many people have no idea that soil contains DNA, or that analyzing it can uncover valuable pieces of information that can be used to make farm management decisions. Below are a few talking points to get you started.

Explaining the Grower Benefits

Choose the right inputs

Inputs are expensive, so buying the right ones is extremely important. Trace Genomics can uncover hidden problems that can't be detected any other way. A soil chemistry test, for example, might indicate that phosphorus levels in the soil are good even though the plants show common symptoms of low phosphorus, such as purple leaves. With Trace Genomics, this grower might learn that the issue is actually that the phosphorus is not available in a form conducive to uptake. In this case, a PCA or agronomist will make a recommendation to increase phosphorus availability to plants.

Proactively reduce risk

Testing soil DNA is the best and most extensive method for detecting soil pathogens prior to planting. Trace Genomics can uncover diseases that can be devastating to crops. As an example, Trace Genomics can detect fusarium prior to planting lettuce or strawberries. PCAs or agronomists can then recommend management plans that will reduce or eliminate the risk to that crop, potentially saving the grower thousands of dollars in losses.

Increase yield & plant health

Plants need the right nutrients to grow, and the Trace Genomics Soil Health Report will help your PCA or agronomist determine what biologicals and nutrients are best-suited for your soil. Growers using Trace Genomics have seen increases in yield, improvement in underperforming blocks, better plant health, and longer shelf life.

Have more confidence in management decisions

Trace Genomics gives you more data about your soil than you've ever had before. This data can help your PCA or agronomist give the best recommendations for seed varieties, cover crop and crop rotation plans, pesticides, fertilizers, and more.

Explaining the Technology

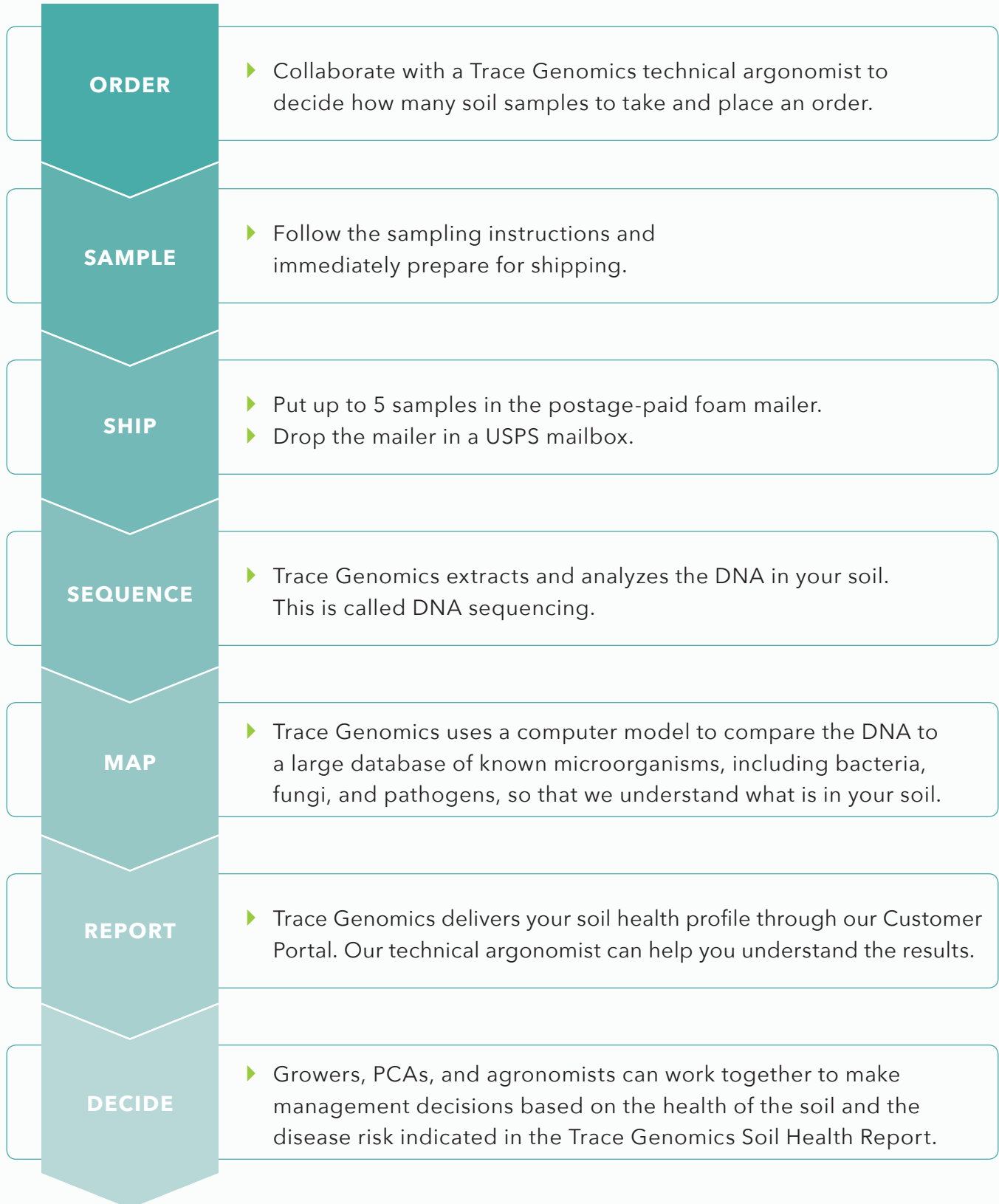
Soil, just like every living organism, has DNA. DNA is like the instruction manual that controls how the soil interacts with the plants and environment. Trace Genomics uses a process called “DNA sequencing” to read the soil DNA. During DNA sequencing, Trace Genomics:

- ▶ Extracts the DNA from your soil sample
- ▶ Reads the DNA
- ▶ Uses a computer model to compare the DNA from your soil sample to a database that contains known DNA from thousands of other soil samples.

Trace Genomics puts the results of the DNA sequencing into our interactive Customer Portal, where it’s clear what pathogens, fungi, and bacteria exist in your soil. This report can be combined with other data sources, such as the results of water, chemical, and tissue tests, to help inform a comprehensive farm management plan.



Explaining the Process



Sampling Best Practices & FAQs

Sampling Guide

Every soil sampling kit contains a step-by-step sampling guide.

Best Practices

- ▶ For annual crops, it's best to take soil samples before planting.
- ▶ Take soil samples in a 2-5 acre grid pattern (custom sampling resolutions can be determined with the help of a Trace Genomics team member).
- ▶ If the purpose is to analyze a low performing block, take samples from that block and from a high performing block with the same characteristics (same variety, soil type, etc.) so that results can be compared.
- ▶ Continue to sample regularly, so that soil health can be analyzed and management decisions can be adjusted as needed. In some cases (for instance, if the goal is to diagnose an issue or gather data about the efficacy of an input), it may be prudent to sample more than once per year. DNA changes over time, so regular testing will ensure management practices are tailored to the current environment.

Frequently Asked Questions

When should I sample?

Ideally, samples for annual crops should be taken prior to planting. Sampling can still be completed in established orchards, vineyards, or fields where crops are already in the ground or harvest has been completed. On the Sample Submission Form, the conditions at the time of sampling should be noted.

How many samples should I take?

We recommend zone sampling or sampling fields of interest in a 2-5 acre grid pattern. Samples can be taken at a lower resolution, but the risk of missing an unhealthy pocket of soil is higher. If sampling low performing blocks, it is best to also sample high performing blocks for comparison.

Where should I sample?

We recommend taking samples close to crop roots because the microbes in and around root systems are better predictors of crop disease and health, compared to microbes in between rows or plants.

How deep should my sample be?

This is dependent on the crop. For example, for lettuce or strawberry crops with short root systems, a 3-6 inch deep core will suffice. For crops like onion or raspberry with deeper root

systems, we recommend that you sample at depths of 7-12 inches or 12-24 inches.

Do I need to fill in the whole Sample Submission Form?

The data collected in the Customer Portal is important for the accurate analysis of your soil. Please enter all sample data at www.Customer.TraceGenomics.com.

How do I store my samples?

Samples should be shipped immediately to Trace Genomics in the pre-addressed envelope. Prior to shipping, keep samples in a cool, dry location.

How do I ship my samples?

Place up to five tubes in the pre-addressed envelope and ship immediately to Trace Genomics. Postage is included, so all you need to do is drop the envelope into a mailbox.

Can you do a custom analysis or help me do a field trial?

Trace Genomics does offer custom analyses for field trials or other special projects. To learn more, contact a Trace Genomics team member.

When will I get my results?

Results are generally returned in 4-5 weeks.

Soil Health Report FAQs

What will my report look like?

Your report, which includes both a pathogen screen and a microbial health analysis, will be available for viewing and printing from our interactive Customer Portal at www.Customer.TraceGenomics.com.

Where should I send feedback?

To provide feedback about our existing services or indicate your interest in participating in user testing sessions for future product updates, send a note to support@tracegenomics.com. Please include your name, organization, and a brief description of the feedback (including ranch name and crop type, if applicable).

How do we know the data is accurate?

We take pride in the accuracy of our data. Each time we analyze a soil sample, the results go through a rigorous quality control check. Samples that do not pass go through a second round of DNA sequencing and an additional quality control check. Data is reviewed by our team before being delivered.

Customer Support

Do you have a question that wasn't answered in this guide? We're here to help! Contact our Customer Success team from 8am - 6pm PT. We strive to return calls and emails within 24 hours.

Phone: +1 650-332-6661

Email: support@tracegenomics.com

Resources & Success Stories

- ▶ Learn about how Arnie Cramer, PCA with Nutrien Ag Solutions, helped his customers catch hidden soil fertility problems.
- ▶ Read about Doyle Goins, PCA with Nutrien Ag Solutions, who was able to build a better fertility plan for his customer, which included increasing biologicals application and decreasing pesticide use to improve plant health and yield.

Talk to our Customer Success team about being featured in a customer success story or on our blog!



