360 SOILSCAN: CONVENTIONAL LAB COMPARED TO IN-FIELD ANALYSIS

360 SOILSCAN™ is a portable, in-field soil lab system that provides soil nutrient analysis in five minutes. This new technology is unique from traditional lab testing.

Difference	360 SOILSCAN	Traditional Lab
Nitrate nitrogen forms and results	360 SOILSCAN measures the nitrate nitrogen that is plant-available in the soil at that moment by creating a soil slurry and measuring the nitrate ions in the slurry. Results may track lower.	Traditional lab methods measure the total nitrate nitrogen in the soil, whether it is available to the plant or not. Results may track higher.
Soil sample preparation	360 SOILSCAN uses fresh soil straight from the field and tests are run immediately after pulling a sample from the field – there is little change in the composition of the soil. **Steps for preparing samples:** 1. Pull samples as normal. 2. Using the scoop provided, place two scoops of soil into the standard Dixie cup and place in the mixing station. 3. Mix soil with distilled water into a slurry. 4. Run the test with 360 SOILSCAN. *Note: Do not dry or alter the soil sample.*	Lab testing uses a process to dry the soil before measuring nitrate levels and samples must be shipped to the lab. This can change the composition of the soil. **Steps for shipping to lab:** 1. Pull samples as normal. 2. Place in Ziploc bag, removing as much air as possible. 3. Use Styrofoam cooler or other box that is air-tight and leak-proof. 4. Pack samples in dry ice. 5. Make sure samples are packed securely, not loosely, to avoid jostling during shipment. 6. Overnight to lab. *Note: If you can't ship right away, place sample in the freezer.*
Reasons for result discrepancies	• Distilled water must be used so nutrients in the water don't impact results. • Altered soil (dried or otherwise) can impact results.	• Sample impacted in storage or shipment that changed soil composition from soil in the field (warmer, wetter, drier).

RESULT ACCURACY AND CERTIFICATION

360 Yield Center has participated in the Agricultural Laboratory Proficiency (ALP) Program in the fall of 2014 and spring of 2015. ALP is a national proficiency testing program that monitors soil analysis for consistency, accuracy and reliability. Participating labs receive homogenized, dried and ground standardized soil samples, measure the samples and report results back. The results are compiled and compared to the other lab participants.

360 SOILSCAN reported results consistent with the standardized soil samples and the results were well within the range for all participating laboratories. The charts below show a breakdown of our performance.

Fall 2014 ALP Results

Samples	360 SOILSCAN Mean (PPM)	Grand Median All Labs (PPM)	Range for All Labs (PPM)
SRS1411	22.9	24.1	21.1 - 27.0
SRS1412	36.3	39.0	30.3 - 47.7
SRS1414	19.4	24.7	11.1 - 38.2
SRS1415	49.2	57.7	33.2 - 82.1

Spring 2015 ALP Results

Samples	360 SOILSCAN Mean (PPM)	Grand Median All Labs (PPM)	Range for All Labs (PPM)
SRS1501	60.3	65.9	59.7 - 72.1
SRS1502	3.67	4.25	2.76 - 5.74
SRS1503	12.7	14.6	9.8 - 19.4
SRS1504	128.3	128.3	109.0 - 147.7
SRS1505	23.7	30.3	11.1 - 49.4

360 SOILSCAN is not officially certified yet because the certification process requires that companies pass controlled testing for multiple nutrients. Since 360 SOILSCAN currently only tests for nitrate nitrogen, the soil testing system doesn't have the ability to complete the certification process as it stands today.

Beck's Hybrids Soil Test Comparisons

In a 2013 Beck's Hybrids study, 360 SOILSCAN was compared with traditional lab testing. This study showed an 86% success rate for both types of testing. See the results below.

Testing Method	0 lb.	125 lb.	150 lb.	175 lb.	200 lb.	225 lb.	250 lb.	Success Rate
360 SOILSCAN NO3	Yes	Yes	Yes	Yes	Yes	No	Yes	86%
Lab NO3	Yes	Yes	Yes	Yes	No	Yes	Yes	86%

CILPFR CAC Nitrogen Rate	Lab NO3	360 SOILSCAN NO3
0 lb.	8.2	6.4
125 lb.	16.1	12.2
150 lb.	21.7	19.5
175 lb.	24.2	28.8
200 lb.	35.8	28.4
225 lb.	40.0	35.2
250 lb.	45.9	48.7

In spring 2013, Beck's Hybrids fertilized test plots with different nitrogen rates (Column 1) in Downs, Ill. In June, soil samples were pulled and tested using 360 SOILSCAN on-site and through a remote traditional lab. The chart on the left shows the comparison of results (in parts per million) from 360 SOILSCAN and the lab.