

Powered by Acti-Cell Technology® (ACT)**Application of SOIL-PLUS® and NUTRA-PLUS®
Improves Crumb Structure and Water Absorption/Retention (Glendale, Arizona) USA****ABSTRACT**

A two-year pilot test was performed between April 2019 and May 2021, in Glendale, Arizona. Soil was treated every 30 to 60 days during the test period to determine the effect of the applied product to improve soil friability (or crumb structure) and conditioning of the soil.

BACKGROUND

Farmers, growers, and landscapers are constantly trying to soften their soil to allow for improved root and plant growth. This improves the quality of their product, creating increased customer satisfaction. Finding a product that improves the root structure while maintaining profitability is the goal of the farmer or landscape manager.

TREATMENT

Biofeed [SOIL-PLUS®](#) and [NUTRA-PLUS®](#) were applied at a rate of 1 quart and 3.5 gallons respectively per acre every 30 to 60 days by trained personnel at Biofeed Solutions, Inc. These treatments were followed by a normal watering cycle.



ACT® is biologically generated using specific organic compounds which are transformed into unique, water-soluble amino acids, enzymes and other beneficial organic compounds through a proprietary process of biological transformation.

RESULTS

Throughout the test period core samples were collected and visually analyzed on an ongoing basis. Each core sample was marked for identification and the core samples were then compared at the end of the test program.

- At the beginning of the test period, there was 2.4% in soil organic matter (LOI).
- After two years, the soil organic matter (LOI) had increased to 4.1%.
- The treated soil presented extreme friability (or crumb structure) with a heavy residue of bacteria growing on the surface.
- Refer to the "Results by the Numbers" section below for third-party soil test results.

**RESULTS BY THE NUMBERS**

Biofeed works with an independent third-party laboratory in Phoenix, AZ that provides quality service for testing soil, water, and plants for agriculture, educational and commercial purposes. Here are more results of the soil health and soil organic matter tests performed in relation to this field study.

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SOIL HEALTHY ASSAY

TEST	RESULT (Untreated)	UNITS (Untreated)	RESULT (With Biofeed®)	Comment
Solvita CO2 Burst	6	ppm	108	Measures soil respiration which is an overall indicator of aerobic soil microbial potential.
Nitrate-N, NO3-N	98	ppm	2	Measures presence of nitrate nitrogen. Nitrate nitrogen easily leaches into soil and contributes to groundwater pollution.
Available Nitrate-N	196	lbs/ac	4	
Microbial Biomass	*	ppm	2400	Measures of the mass of the living component of soil organic matter.
Potentially Mineralizable N (PMN)	*	lbs/ac	49	Measures organic nitrogen converted to plant available (or mineral) form.
Total Usable N	*	lbs/ac	50	Measures the total amount of usable nitrogen for plant uptake.

*Values less than 20 ppm in soil for CO2 Burst are not recognized as useful for PMN predictions.

SOIL ORGANIC MATTER

TEST	RESULT (Untreated)	UNITS (Untreated)	RESULT (With Biofeed®)	Comment
Organic Matter (LOI)	2.4	%	4.1	Measures organic matter content in soils.

SUMMARY

The reduction in compaction of the soil made substantial improvement. The soil became highly friable and contributed to growth of the crops. Water absorption/retention was increased by over 150% which allowed for increased production and rooting.

