Data analysis to determine the effectiveness of a soil treatment

What is the difference between amounts of nutrients from baseline to treatment?

In order to determine if a treatment makes a difference, some data analysis is necessary. Comparing the raw numbers does not often give an idea of the amount of change from control to treated. One way to analyze data is to look at percent change from the control or baseline to treatment.

Use the plot key to see which condition each of the letters represents.

In this activity, determine the percentage of change in the nutrient by comparing different treatments. The formula to follow is: (new amount - original amount)/original amount

(amount on Aug 1 – amount on July 19) / amount on July 19.

Be sure to indicate whether the change is an increase or decrease.

Nitrogen

% PRESENT IN TISSUE SAMPLE	A	V	U	T	K	S	R	NO	LIGHT	CHECK
7/19/19	3.92	4.87	5.68	5.76	5.25	5.76	5.82	5.75	5.96	5.77
8/1/19 NOT SPRAYED	6.35	5.88	5.36	4.69	5.53	6.14	5.41	5.93	6.11	5.75
8/1/19 SPRAYED	6.57	5.78	5.58	5.58	6.00	6.05	5.42	5.82	5.71	6.40

	A	V	U	T	K	S	R	NO	LIGHT	CHECK
% Change: 7/19 to 8/1 Not Sprayed										
% Change: 7/19 to 8/1 Sprayed										
% Change: Not Sprayed to Sprayed										

Phosphorus

% PRESENT IN TISSUE SAMPLE	A	V	U	T	K	S	R	NO	LIGHT	CHECK
7/19/19	0.48	0.52	0.61	0.53	0.43	0.50	0.59	0.51	0.46	0.52
8/1/19 NOT SPRAYED	0.58	0.55	0.45	0.47	0.57	0.52	0.45	0.48	0.51	0.48
8/1/19 SPRAYED	0.55	0.52	0.52	0.48	0.46	0.53	0.47	0.47	0.51	0.55

Boosting the Chemistry of Soil

	A	V	U	T	K	S	R	NO	LIGHT	CHECK
% Change: 7/19 to 8/1 Not Sprayed										
% Change: 7/19 to 8/1 Sprayed										
% Change: Not Sprayed to Sprayed										

Potassium

% PRESENT IN TISSUE SAMPLE	A	V	U	T	K	S	R	NO	LIGHT	CHECK
7/19/19	2.17	2.39	2.30	2.58	1.85	2.34	2.60	2.33	2.34	2.32
8/1/19 NOT SPRAYED	2.52	2.42	1.97	2.23	2.25	2.21	2.07	2.17	2.26	2.36
8/1/19 SPRAYED	2.43	2.44	2.43	2.43	2.35	2.43	2.43	2.45	2.34	2.51

	A	V	U	T	K	S	R	NO	LIGHT	CHECK
% Change: 7/19 to 8/1 Not Sprayed										
% Change: 7/19 to 8/1 Sprayed										
% Change: Not Sprayed to Sprayed										

1. Compare the percent change from July to August. Identify any significant changes for nitrogen.

2. Was the change positive or negative? Explain your reasoning.

3. Compare the percent change from 'not sprayed' to 'sprayed' for nitrogen. Identify any significant changes.

4. Were the changes positive or negative, explain your reasoning.

5. Compare the percent change from July to August. Identify any significant changes for phosphorus.

6. Was the change positive or negative? Explain your reasoning.

7. Compare the percent change from 'not sprayed' to 'sprayed' for phosphorus, identify any significant changes.

8. Were the changes positive or negative? Explain your reasoning.

9. Compare the percent change from July to August. Identify any significant changes for potassium.

10. Was the change positive or negative? Explain your reasoning.

11. Compare the percent change from 'not sprayed' to 'sprayed' for potassium. Identify any significant changes.

12. Were the changes positive or negative? Explain your reasoning.

13. Does this data help to determine if the soil amendments were effective?

14. What environmental factors could possibly affect the percent change?

15. How would the environmental factors you listed above impact the percent change?