Boosting the Chemistry of Soil

Data Analysis-Example

In this case study two products are tested: Fertizol which allows more time for Zn availability to plants and BioBuild, a blend of microbes to increase flower production (more flowers, more pods), phosphate solubilization and nitrogen fixation. The data collected on this set of test plots is a bit overwhelming. The data can be copied and pasted into different spreadsheets, based on what you decide to analyze. The steps in that process include:

1. Determine what data is needed by investigating the product(s) used in the treatments.
2. Determine what differences can be used to analyze the effects of the products.
3. Use the evidence to create an argument for using/not using the products.

One possibility is comparing plant tissue samples to soil tests. If the soil test shows a low amount of a mineral and the tissue test shows high, that may indicate the plant has taken the mineral from the soil to use.

See below for an example.

Soybean Plant Tissue Test
Phosphorus (P) by **percent**

Test Plot	A	V	U	T	K	S	R	No	Light	Check
07/19/19	0.48	0.52	0.61	0.53	0.43	0.5	0.59	0.51	0.46	0.52
8/1/19 Sprayed	0.58	0.55	0.45	0.47	0.57	0.52	0.45	0.48	0.51	0.48
8/1/19 Not Sprayed	0.55	0.52	0.52	0.48	0.46	0.53	0.47	0.47	0.51	0.55

Soybean Plants Soil Test in Rows
Phosphorus (P) in **lbs/acre**

Test Plot	A	V	U	T	K	S	R	No	Light	Check
07/19/19	44	59	67	54	66	59	66	110	121	112
8/1/19 Sprayed	97	87	82	70	62	69	70	101	122	87
8/1/19 Not Sprayed	82	98	55	76	99	106	108	71	91	111

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Soil Test Phosphorus

Tissue Test Phosphorus
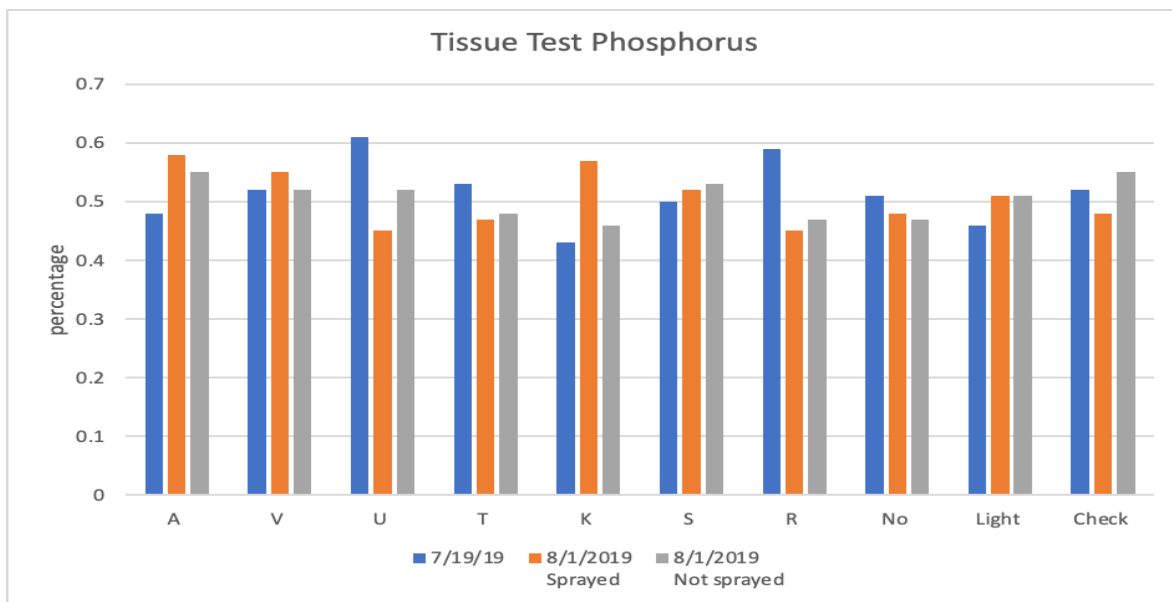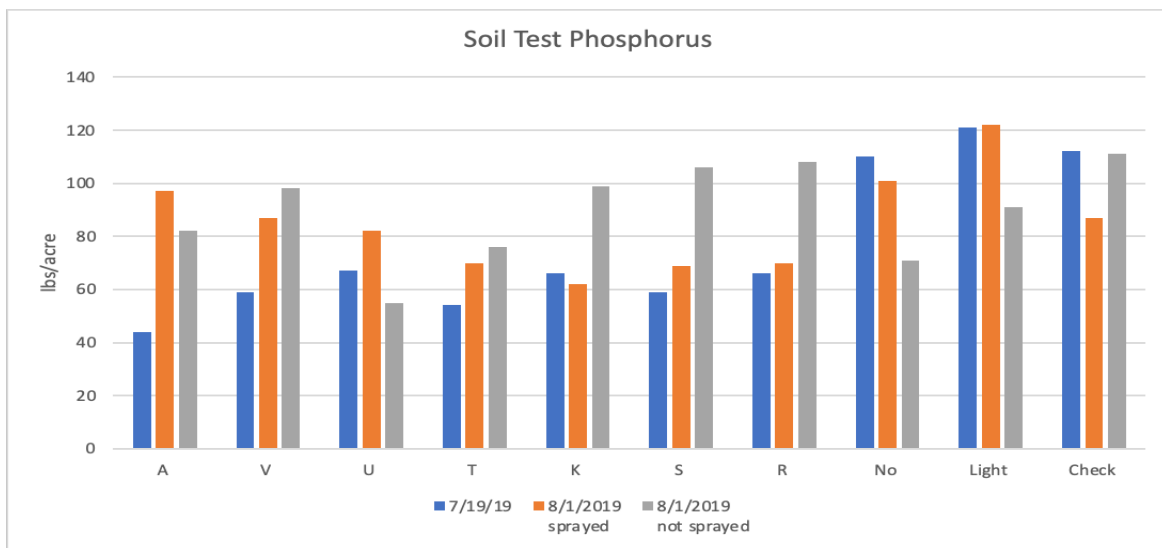
Reflection

1. Compare these two data sets. Do they appear to show the same trends for all plots?

   The data trend in the same ways for conditions A, S, no and check, but the other conditions do not match up.

2. What factors might affect the data?

   The phosphorus absorbed through the roots may already be used by the plant. The phosphorus may not be in an available form for the plant to absorb.

3. What other data sets might you compare to see if the soil amendment made a difference?

   Answers will vary.

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