

Plant Tuff Cucumber Trial 2016
Mid-Michigan Agronomy, LLC
White Pigeon, MI

Objective: To evaluate the effect of Plant Tuff Silicon Fertilizer on the growth and yield of processing cucumbers.

This trial was established as a Randomized Complete Block Design and the ANOVA was run using that design. The cucumber variety, Pepino, was planted in a 4-row plot, 10' x 40' in size. The treatments were applied to the plot uniformly using a handheld broadcast spreader on 4/15/2016. Treatments were randomized and replicated four times. Plant vigor was measured on 6/24/2016 using a scale from 1-5, with a 5 being the highest vigor rating.

Plots were harvested on 7/21/2016 and yields were determined. Yields were measured for two sizes of cucumbers, large and small, in both lbs. per plot and tons/acre. Total weight per plot was also determined. Vine weight was also measured to evaluate the effect of Plant Tuff Silicon Fertilizer on overall plant biomass.

Location: White Pigeon, MI
Soil Type: Silty Clay Loam

Planting Date: 05/17/2016
Treatment Date: 04/15/2016
Harvest Date: 07/21/2016
Variety: Pepino
Plot Size: 10' X 40'

Pre-Treatment

Soil Si Range: 52-190 PPM
Soil Si Avg: 95.2 PPM
Soil Si Outliers: None

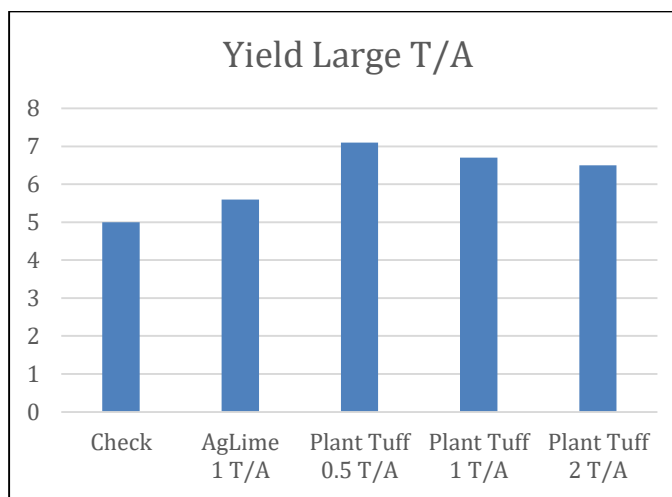
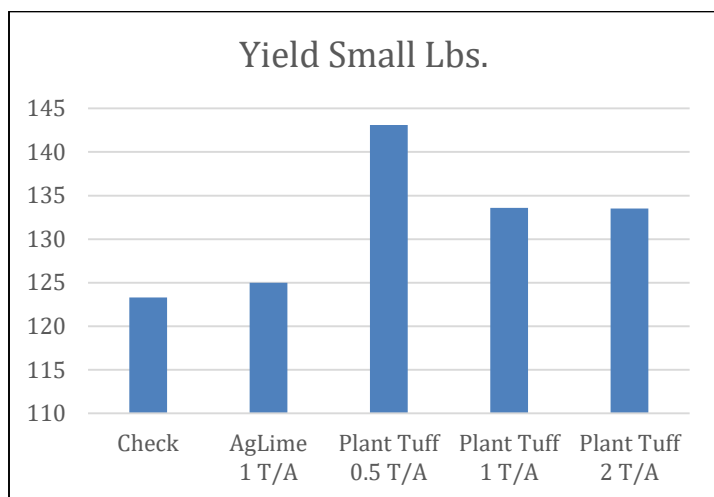
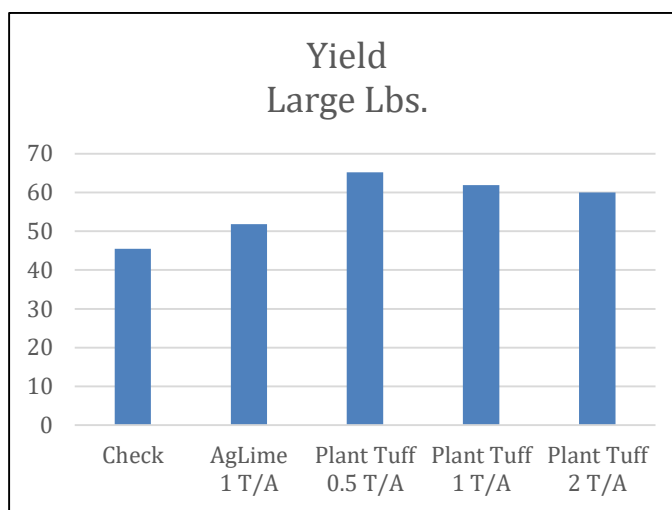
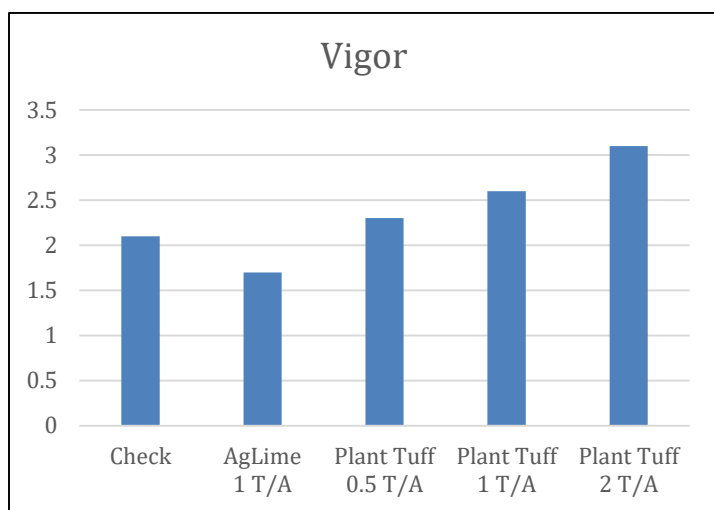
Parameters Measured: Plant Vigor (1-5)
Total Yield (Lbs. and T/A) for small and large fruit
Plant Vine Weight (Lbs. and T/A)

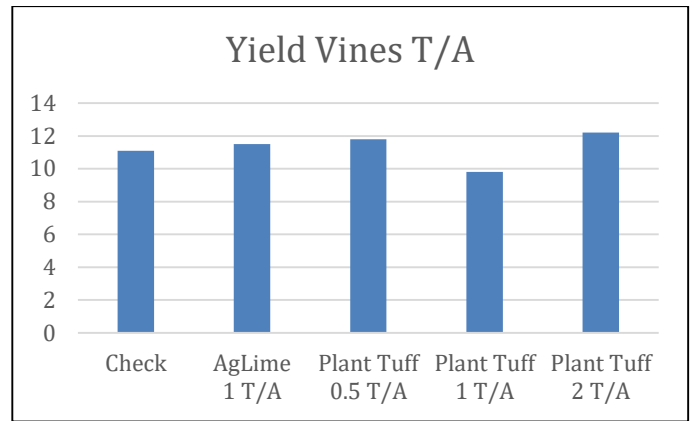
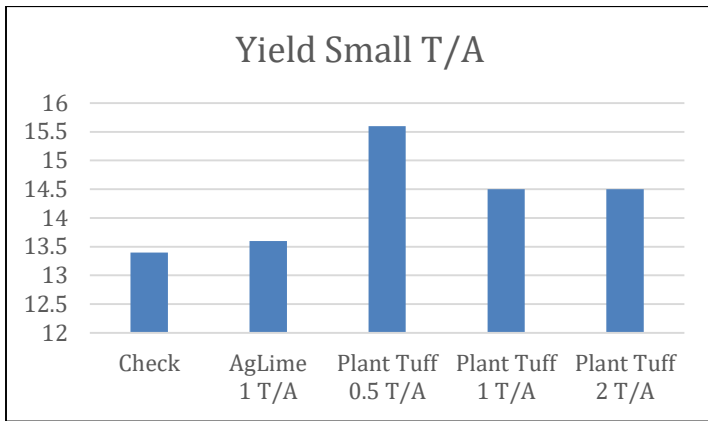
Treatments:

<u>Material</u>	<u>Rate</u>
Untreated Check	---0---
Ag Lime	1.0 T/A
Plant Tuff	0.5 T/A
Plant Tuff	1.0 T/A
Plant Tuff	2.0 T/A

Table 1. Yield for Cucumber, var. Pepino, Treated with Plant Tuff Silicon Fertilizer

Treatment	Rate	Vigor	Yield Large Lbs.	Yield Small Lbs.	Yield Vines Lbs.	Yield Large T/A	Yield Small T/A	Yield Vines T/A
Check	0	2.1	45.5	123.3	101.5	5.0	13.4	11.1
Ag Lime	1.0	1.7	51.8	125.0	105.7	5.6	13.6	11.5
Plant Tuff	0.5	2.3	65.2	143.1	108.0	7.1	15.6	11.8
Plant Tuff	1.0	2.6	61.9	133.6	90.3	6.7	14.5	9.8
Plant Tuff	2.0	3.1	60.0	133.5	111.9	6.5	14.5	12.2





Results:

Broadcast soil applications of Plant Tuff Silicon Fertilizer were evaluated on the cucumber variety, Pepino. Treatments included Plant Tuff applied at 0.5, 1.0, and 2.0 tons per acre, Ag Lime applied at 1 ton per acre, and an untreated check. All treatments were applied on 4/15/2016, prior to planting. The data was statistically analyzed as a Randomized Complete Block Design with 4 replicates.

There was a significant trend observed in yield expressed in lbs./treatment or tons/acre. As the rate of Plant Tuff Silicon Fertilizer was increased there was a corresponding response in lbs./treatment and in total tonnage/acre. Yield for the 1 T/acre of Plant Tuff Silicon Fertilizer was 61.9 Lbs./Treatment or 6.7 T/A, as compared to 51.8 lbs./Treatment or 5.6 T/A for Ag Lime, and 45.5 lbs./Treatment or 5.0 T/A for the untreated check. There were significant positive trends in plant weight with increasing rates of Plant Tuff Silicon Fertilizer and as compared to the untreated check, indicating more vines per plant and larger vines per plant for the Plant Tuff treated cucumbers.

There was a significant positive trend of increasing total yields and plant biomass in tons/acre as the rate of Plant Tuff Silicon Fertilizer was increased. The timing of application may be a key issue affecting the performance of Plant Tuff Silicon Fertilizer. It is theorized that a fall application of Plant Tuff will lead to even greater results as the extra time will allow the soil microbes to work on the Plant Tuff Silicon Fertilizer and make the nutrients available earlier in the growing season, therefore helping to promote early plant growth and greater yields.