Staistical Analysis

From our data, we conducted a one-way analysis of variance (ANOVA) test that compares the means of several populations. The ANOVA F test tests overall Ho that all the populations have the same mean. If the F test shows significant differences, the data will show that the different concentrations of sulfur will make a difference on the zone of inhibition.

Assumptions:

1. We conducted an independent SRS (Simple Random Sample) from each population
2. Each population has a normal distribution
3. All populations have the same standard deviation

Hypothesis:

Ho: The sample means of each population are equal

Ha: Not all of the populations’ means are equal

The mean squares that make up F: (the equation)

2 2

MSG= n1(x1-x)+n2(x2-x) +….

I-1

&

2 2

MSE= (n1-1)s1+(n2-1)s1+……

N-1

For the sake of simplification, we were able to use a calculator program that did this kind of math for us. We used a TI-83 statistic math program that preformed the ANOVA test for us. For more details on how to do this test by hand please consult:

Moore, David S. The Basic Practice of Statistics. W.H. Freeman and Company, New York. 1995

**\*\*\*\*PUT THIS IN THE BIOGRAPHY PAGE PLEASE!!!!!\*\*\*\*\***

Here are our results:

Testing all levels of Sulfur with combined grasses

F=1.3559 P=.2738

Based on the p-value of .2738, we failed to reject the Ho at the 5% level. There is not enough convincing information so the sample means of each population aren’t statistically significant.

Testing Pacific Bentgrass at each level

F=1.34 P=,3202

Based on the p-valus of .3202, we fail to reject the null hypothesis once again at the 5% level

Testing Creeping Bentgrass at each concentration level

F= 2.83 P=.083

Even though this p-value is close to rejecting the Ho and therefore showing significance, we still fail to reject the null hypothesis. There is still no strong data to prove that our data collection showed a difference of sulfur concentration

Testing Spike Bentgrass at each concentration level

F=2.2 P=.142

Once again there is no significance between the different concentrations of sulfur at the p-value of .142 at the 5% significance level.

Testing th soil at each level

F=1.867 P=.193

There isn’t enough evidence to reject the Ho. The means of each population at different concentrations of sulfur are the same. There is no significance of varience.

# **PUT THIS INTO OUR CONCLUSION!!\*\*\*\*(AND/OR RESULTS)**

Based on our statistical analysis using the ANOVA test that tested the variance and significance between data, our experiment was unable to support our hypothesis. However, since our data did indicate some change in growth of the bacteria we suggest further investigating. Our graphs seem to support the significant decrease in bacteria growth at higher levels of sulfur concentration, but after the ANOVA test, we were proved incorrect. There is somewhat a decrease of growth, but not enough to prove to be a difference of sulfur concentrations.