|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [Abstract](http://docs.google.com/abstract.html)  [Introduction](http://docs.google.com/intro.html)  [Hypothesis/Prediction](http://docs.google.com/hypo.html)  [Materials](http://docs.google.com/material.html)  [Protocol](http://docs.google.com/protocol.html)  [Literature Review](http://docs.google.com/lit.html)  [Data](http://docs.google.com/data.html)  [Statistical Analysis](http://docs.google.com/stats.html)  [Graphs](http://docs.google.com/graphs.html)  [Images](http://docs.google.com/images.html)  [Conclusion](http://docs.google.com/conc.html)  [Works Cited](http://docs.google.com/works.html)  [Recommendations](http://docs.google.com/recc.html)  [Acknowledgements](http://docs.google.com/ack.html)  [Biology Updates](http://docs.google.com/updates.html)  [Stats Generic Rye](http://docs.google.com/stats2.html)  [Home](http://docs.google.com/home.html) | **Generic Ryegrass**  **One-way ANOVA: control, 2.0 SO2, 2.5 SO2, 3.0 SO2, 3.5 SO2**  Analysis of variance   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Source** | DF | SS | MS | F | P | | factor | 4 | 317.41 | 79.35 | 13.28 | 0.0 | | Error | 120 | 716.95 | 5.97 |  |  | | Total | 124 | 1034.35 |  |  |  | |  |  |  |  |  |  | | **Level** | N | Mean | St Dev |  |  | | control | 25 | 13.332 | 3.319 |  |  | | 2.0 SO2 | 25 | 10.504 | 1.857 |  |  | | 2.5 SO2 | 25 | 10.424 | 1.983 |  |  | | 3.0 SO2 | 25 | 12.244 | 2.733 |  |  | | 3.5 SO2 | 25 | 14.520 | 1.991 |  |  |   Pooled StDev = 2.444  Ho: u1=u2=u3=u4  Ha: not equal | Individual 95% Cis For Mean  Based on Pooled StDev  ------+---------+---------+---------+  ..........................(----\*---)  ..(----\*---)  (----\*----)  .............(----\*----)  .........................(----\*---)  ------+---------+---------+---------+  ...10.0 .....12.0 .....14.0 .....16.0  [Stats Perennial Rye Grass](http://docs.google.com/stats.html)  [T-Test: Statistical Analysis](http://docs.google.com/stats3.html) |   **One-way ANOVA: control, 2.0 NO2, 2.5 NO2, 3.0 NO2, 3.5NO2**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Source** | DF | SS | MS | F | P | | factor | 4 | 214.81 | 53.7 | 6.67 | 0.0 | | Error | 120 | 966.18 | 8.05 |  |  | | Total | 124 | 1180.99 |  |  |  | |  |  |  |  |  |  | | **Level** | N | Mean | St Dev |  |  | | control | 25 | 13.331 | 3.319 |  |  | | 2.0 SO2 | 25 | 10.760 | 3.197 |  |  | | 2.5 SO2 | 25 | 12.00 | 2.403 |  |  | | 3.0 SO2 | 25 | 12.848 | 2.568 |  |  | | 3.5 SO2 | 25 | 14.680 | 2.579 |  |  |   Pooled StDev = 8.332  Ho: u1=u2=u3=u4  Ha: not equal | Individual 95% Cis For Mean  Based on Pooled StDev  ------+---------+---------+---------+  ...................(-----\*----)  ....(-----\*----)  ...........(-----\*-----)  ................(-----\*-----)  .........................(-----\*-----)  ------+---------+---------+---------+  ....28.0 ....31.5 .....35.0 .....38.5  [Stats Perennial Rye Grass](http://docs.google.com/stats.html)  [T-Test: Statistical Analysis](http://docs.google.com/stats3.html) |   Conclusions:  We reject the null hypothesis because at the five percent alpha level our p-values were basically zero for both sulfuric and nitric acid. This means that the data was statistically significant and at the low pH levels, the acid had an affect on the growth rate of the Ryegrass. However, over the thirty days, the acid did not kill the Ryegrass. Therefore, the alternative hypothesis of the growth height not being equal follows our experimental assumptions. |