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Practice: Using the One-Way ANOVA Task to Perform Post Hoc Pairwise Comparisons

Consider the analysis of the **garlic** data set. In the previous exercise, you used PROC GLM to perform one-way ANOVA, and found that there was a statistically significant difference among mean garlic bulb weights for the different fertilizers. Now, perform a post hoc test to look at the individual differences among means

1. Use the One-Way ANOVA task to conduct pairwise comparisons with an experimentwise error rate of $\alpha=0.05$. (Use the Tukey adjustment.)

2. Which types of fertilizer are significantly different?

3. Modify the task to use level 4 (the chemical fertilizer) as the control group and perform a Dunnett's comparison with the organic fertilizers to see whether they affected the average weights of garlic bulbs differently from the control fertilizer.

4. Which types of fertilizer are significantly different?

5. **Challenge**: Perform unadjusted tests of all pairwise comparisons to see what would happen if the multi-test adjustments were not made.

6. How do the results compare to what you saw in the Tukey adjusted tests?

Show Solution