# One-way ANOVA: responses versus levels

#### Method

Null hypothesis All means are equal
Alternative hypothesis Not all means are equal

Significance level  $\alpha = 0.05$ 

Equal variances were assumed for the analysis.

#### **Factor Information**

| Factor | Levels Values        | evels Values    |  |
|--------|----------------------|-----------------|--|
| levels | 5 10, 15, 20, 25, 30 | 5 10, 15, 20, 2 |  |

### **Analysis of Variance**

| Source | DF | Adj SS  | Adj MS | F-Value | P-Value |
|--------|----|---------|--------|---------|---------|
| levels | 4  | 16.61   | 4.153  | 0.11    | 0.978   |
| Error  | 55 | 2032.32 | 36.951 |         |         |
| Total  | 59 | 2048.93 |        |         |         |

### **Model Summary**

| S       | R-sq  | R-sq(adj) | R-sq(pred) |
|---------|-------|-----------|------------|
| 6.07875 | 0.81% | 0.00%     | 0.00%      |

#### **Means**

| levels | Ν  | Mean  | StDev | 95% CI          |
|--------|----|-------|-------|-----------------|
| 10     | 12 | 1.163 | 2.800 | (-2.354, 4.680) |
| 15     | 12 | 1.40  | 4.28  | (-2.11, 4.92)   |
| 20     | 12 | 1.86  | 5.72  | (-1.66, 5.38)   |
| 25     | 12 | 2.22  | 7.18  | (-1.30, 5.73)   |
| 30     | 12 | 2.61  | 8.63  | (-0.91, 6.13)   |

 $Pooled\ StDev = 6.07875$ 

### **Tukey Pairwise Comparisons**

## **Grouping Information Using the Tukey Method and 95% Confidence**

| levels | N  | Mean | Grouping |
|--------|----|------|----------|
| 30     | 12 | 2.61 | Α        |
| 25     | 12 | 2.22 | Α        |
| 20     | 12 | 1.86 | Α        |

15 12 1.40 A 10 12 1.163 A

Means that do not share a letter are significantly different.





