## APPENDICES

### Appendix (1)

The SAS System          22:58
Monday, June 15, 2005

Analysis of Variance Procedure
Class Level Information

<table>
<thead>
<tr>
<th>Class</th>
<th>Levels</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOCK</td>
<td>6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>TRTMENT</td>
<td>5</td>
<td>nse1 nse2 nse3 sce1 wat1</td>
</tr>
</tbody>
</table>

Number of observations in data set = 90

Dependent Variable: **Repellency**

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>9</td>
<td>568.8444444444</td>
<td>63.20493827</td>
<td>33.79</td>
<td>0.0001</td>
</tr>
<tr>
<td>Error</td>
<td>80</td>
<td>149.6444444444</td>
<td>1.87055556</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>89</td>
<td>718.4888888889</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R-Square 0.791723, C.V. 30.31809, Root MSE 1.36768255, REPL Mean 4.51111111

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Anova SS</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOCK</td>
<td>5</td>
<td>146.355555556</td>
<td>29.27111111</td>
<td>15.65</td>
<td></td>
</tr>
<tr>
<td>TRTMENT</td>
<td>4</td>
<td>422.488888889</td>
<td>105.62222222</td>
<td>56.47</td>
<td></td>
</tr>
</tbody>
</table>
Duncan's Multiple Range Test for variable: **Repellency**

Alpha= 0.05  df= 80  MSE= 1.870556  
Number of Means  2  3  4  5  
Critical Range  0.907 0.955 0.986 1.009  
Means with the same letter are not significantly different.

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>TRTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7.4444</td>
<td>18 nse3</td>
</tr>
<tr>
<td>B</td>
<td>6.3333</td>
<td>18 nse2</td>
</tr>
<tr>
<td>C</td>
<td>4.5556</td>
<td>18 nse1</td>
</tr>
<tr>
<td>D</td>
<td>2.2222</td>
<td>18 sce1</td>
</tr>
<tr>
<td>D</td>
<td>2.0000</td>
<td>18 wat1</td>
</tr>
</tbody>
</table>

Number of Means  2  3  4  5  6  
Critical Range  0.994 1.046 1.080 1.105 1.125  

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.2667</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>6.1333</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>4.5333</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>3.7333</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>3.2000</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>C</td>
<td>3.2000</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.0000</td>
<td>3</td>
<td>nse1t1</td>
</tr>
<tr>
<td>A</td>
<td>6.0000</td>
<td>3</td>
<td>nse1t2</td>
</tr>
<tr>
<td>B</td>
<td>4.6667</td>
<td>3</td>
<td>nse1t3</td>
</tr>
<tr>
<td>B</td>
<td>4.0000</td>
<td>3</td>
<td>nse1t4</td>
</tr>
</tbody>
</table>
Appendix (2)

The SAS System     22:58

Monday, June 15, 2005

Analysis of Variance Procedure
Class Level Information

Class  Levels  Values
BLOCK    6    1 2 3 4 5 6
TRTMENT  5    nsh1 nsh2 nsh3 sch1 wat1

Number of observations in data set = 90

Dependent Variable: Repellency
<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>9</td>
<td>4541.24444444</td>
<td>504.58271605</td>
<td>360.70</td>
<td>0.0001</td>
</tr>
<tr>
<td>Error</td>
<td>80</td>
<td>111.91111111</td>
<td>1.39888889</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>89</td>
<td>4653.15555556</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R-Square</th>
<th>C.V.</th>
<th>Root MSE</th>
<th>REPL Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.975949</td>
<td>12.04154</td>
<td>1.18274633</td>
<td>9.82222222</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Anova SS</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOCK</td>
<td>5</td>
<td>158.75555556</td>
<td>31.75111111</td>
<td>22.70</td>
<td></td>
</tr>
<tr>
<td>TRTMENT</td>
<td>4</td>
<td>4382.48888889</td>
<td>1095.62222222</td>
<td>783.21</td>
<td></td>
</tr>
</tbody>
</table>
Analysis of Variance Procedure

Duncan's Multiple Range Test for variable: Repellency

Alpha= 0.05  df= 80  MSE= 1.398889

Number of Means 2 3 4 5

Critical Range .7846 .8255 .8527 .8725

Means with the same letter are not significantly different.

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TRTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>19.7778</td>
<td>18</td>
<td>nsh3</td>
</tr>
<tr>
<td>B</td>
<td>15.5556</td>
<td>18</td>
<td>nsh2</td>
</tr>
<tr>
<td>C</td>
<td>9.0000</td>
<td>18</td>
<td>nsh1</td>
</tr>
<tr>
<td>D</td>
<td>2.7778</td>
<td>18</td>
<td>sch</td>
</tr>
<tr>
<td>D</td>
<td>2.0000</td>
<td>18</td>
<td>wat1</td>
</tr>
</tbody>
</table>

Number of Means 2 3 4 5 6

Critical Range .8595 .9043 .9341 .955. 9726

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11.4667</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>11.3333</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>10.5333</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>8.8000</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>8.4000</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>C</td>
<td>8.4000</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11.3333</td>
<td>3</td>
<td>nsh1t1</td>
</tr>
<tr>
<td>A</td>
<td>11.3333</td>
<td>3</td>
<td>nsh1t2</td>
</tr>
<tr>
<td>B</td>
<td>9.3333</td>
<td>3</td>
<td>nsh1t3</td>
</tr>
<tr>
<td>C</td>
<td>7.3333</td>
<td>3</td>
<td>nsh1t4</td>
</tr>
<tr>
<td>C</td>
<td>7.3333</td>
<td>3</td>
<td>nsh1t5</td>
</tr>
</tbody>
</table>
Appendix (3)

The SAS System          22:58
Monday, June 15, 2005

Analysis of Variance Procedure
Class Level Information

Class    Levels    Values
BLOCK       6    1 2 3 4 5 6
TRTMENT     5   nle1 nle2 nle3 sce1 wat1

Number of observations in data set = 90
Dependent Variable: Repellency
### Analysis of Variance Procedure

**Duncan's Multiple Range Test for variable: Repellency**

Alpha= 0.05 df= 80  MSE= 2.262778

Number of Means  2 3 4 5 6

Critical Range  0.998 1.050 1.084 1.110

Means with the same letter are not significantly different.

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TRTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7.7778</td>
<td>18</td>
<td>nle3</td>
</tr>
<tr>
<td>A</td>
<td>7.0000</td>
<td>18</td>
<td>nle2</td>
</tr>
<tr>
<td>B</td>
<td>4.3333</td>
<td>18</td>
<td>nle1</td>
</tr>
<tr>
<td>C</td>
<td>2.2222</td>
<td>18</td>
<td>sce1</td>
</tr>
<tr>
<td>C</td>
<td>2.0000</td>
<td>18</td>
<td>wat1</td>
</tr>
</tbody>
</table>

Number of Means  2 3 4 5 6

Critical Range  1.093 1.150 1.188 1.216 1.237

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.6667</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>6.6667</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Grouping</td>
<td>Mean</td>
<td>N</td>
<td>TIME</td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td>A</td>
<td>5.6000</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>3.4667</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>2.8000</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>2.8000</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>

**Duncan Grouping**

<table>
<thead>
<tr>
<th>Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7.3333</td>
<td>3</td>
<td>nle1t1</td>
</tr>
<tr>
<td>A</td>
<td>7.3333</td>
<td>3</td>
<td>nle1t2</td>
</tr>
<tr>
<td>B</td>
<td>4.6667</td>
<td>3</td>
<td>nle1t3</td>
</tr>
<tr>
<td>C</td>
<td>2.0000</td>
<td>3</td>
<td>nle1t4</td>
</tr>
<tr>
<td>C</td>
<td>2.0000</td>
<td>3</td>
<td>nle1t5</td>
</tr>
<tr>
<td>C</td>
<td>2.0000</td>
<td>3</td>
<td>nle1t6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10.0000</td>
<td>3</td>
<td>nle2t1</td>
</tr>
<tr>
<td>A</td>
<td>10.0000</td>
<td>3</td>
<td>nle2t2</td>
</tr>
<tr>
<td>A</td>
<td>9.3333</td>
<td>3</td>
<td>nle2t3</td>
</tr>
<tr>
<td>B</td>
<td>4.6667</td>
<td>3</td>
<td>nle2t4</td>
</tr>
<tr>
<td>B</td>
<td>4.0000</td>
<td>3</td>
<td>nle2t5</td>
</tr>
<tr>
<td>B</td>
<td>4.0000</td>
<td>3</td>
<td>nle2t6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11.3333</td>
<td>3</td>
<td>nle3t1</td>
</tr>
<tr>
<td>A</td>
<td>11.3333</td>
<td>3</td>
<td>nle3t2</td>
</tr>
<tr>
<td>B</td>
<td>10.0000</td>
<td>3</td>
<td>nle3t3</td>
</tr>
<tr>
<td>C</td>
<td>6.0000</td>
<td>3</td>
<td>nle3t4</td>
</tr>
<tr>
<td>D</td>
<td>4.0000</td>
<td>3</td>
<td>nle3t5</td>
</tr>
<tr>
<td>D</td>
<td>4.0000</td>
<td>3</td>
<td>nle3t6</td>
</tr>
</tbody>
</table>
### Appendix (4)

The SAS System        22:58

Monday, June 15, 2005

**Analysis of Variance Procedure**

**Class Level Information**

<table>
<thead>
<tr>
<th>Class</th>
<th>Levels</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOCK</td>
<td>6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>TRTMENT</td>
<td>5</td>
<td>nlh1 nlh2 nlh3 sch1 wat1</td>
</tr>
</tbody>
</table>

Number of observations in data set = 9

**Dependent Variable: Repellency**

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>9</td>
<td>1225.51111111</td>
<td>136.16790123</td>
<td>59.19</td>
<td>0.0001</td>
</tr>
<tr>
<td>Error</td>
<td>80</td>
<td>184.04444444</td>
<td>2.30055556</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>89</td>
<td>1409.55555556</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**R-Square** C.V. Root MSE REPL Mean
0.869431 26.25158 1.51675824 5.77777778

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Anova SS</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOCK</td>
<td>5</td>
<td>305.955555556</td>
<td>61.19111111</td>
<td>26.60</td>
<td>0.0001</td>
</tr>
<tr>
<td>TRTMENT</td>
<td>4</td>
<td>919.555555556</td>
<td>229.88888889</td>
<td>99.93</td>
<td></td>
</tr>
</tbody>
</table>
Duncan's Multiple Range Test for variable: **Repellency**

Alpha= 0.05  df= 80  MSE= 2.300556

<table>
<thead>
<tr>
<th>Number of Means</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Range</td>
<td>1.006</td>
<td>1.059</td>
<td>1.093</td>
<td>1.119</td>
</tr>
</tbody>
</table>

Means with the same letter are not significantly different.

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TRTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10.5556</td>
<td>18</td>
<td>nlh3</td>
</tr>
<tr>
<td>B</td>
<td>8.0000</td>
<td>18</td>
<td>nlh2</td>
</tr>
<tr>
<td>C</td>
<td>5.5556</td>
<td>18</td>
<td>nlh1</td>
</tr>
<tr>
<td>D</td>
<td>2.7778</td>
<td>18</td>
<td>sch1</td>
</tr>
<tr>
<td>D</td>
<td>2.0000</td>
<td>18</td>
<td>wat1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Means</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Range</td>
<td>1.102</td>
<td>1.160</td>
<td>1.198</td>
<td>1.226</td>
<td>1.247</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8.2667</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>8.1333</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>5.4667</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>5.3333</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>3.7333</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>C</td>
<td>3.7333</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8.0000</td>
<td>3</td>
<td>nlht1</td>
</tr>
<tr>
<td>A</td>
<td>8.0000</td>
<td>3</td>
<td>nlht2</td>
</tr>
<tr>
<td>B</td>
<td>5.3333</td>
<td>3</td>
<td>nlht3</td>
</tr>
<tr>
<td>B</td>
<td>5.3333</td>
<td>3</td>
<td>nlht4</td>
</tr>
<tr>
<td>C</td>
<td>3.3333</td>
<td>3</td>
<td>nlht5</td>
</tr>
</tbody>
</table>
Appendix (5)

The SAS System        22:58

Monday, June 15, 2005

Analysis of Variance Procedure
Class Level Information

Class    Levels    Values
BLOCK       6    1 2 3 4 5 6
TRTMENT     5    cle1 cle2 cle3 sce1 wat1

Number of observations in data set = 90
Dependent Variable: **Repellency**

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>9</td>
<td>4466.88888889</td>
<td>496.32098765</td>
<td>329.78</td>
<td>0.0001</td>
</tr>
<tr>
<td>Error</td>
<td>80</td>
<td>120.40000000</td>
<td>1.50500000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>89</td>
<td>4587.28888889</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R-Square: 0.973754  C.V.: 13.49763  Root MSE: 1.22678441  REPL Mean: 9.08888889

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Anova SS</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOCK</td>
<td>5</td>
<td>103.15555556</td>
<td>20.63111111</td>
<td>13.71</td>
<td>0.0001</td>
</tr>
<tr>
<td>TRTMENT</td>
<td>4</td>
<td>4363.73333333</td>
<td>1090.9333333</td>
<td>724.87</td>
<td></td>
</tr>
</tbody>
</table>

The SAS System 22:58 Monday, June 15, 2005
Analysis of Variance Procedure

Duncan's Multiple Range Test for variable: **Repellency**

Alpha= 0.05  df= 80  MSE= 1.505

Number of Means 2 3 4 5

Critical Range .8138 .8563 .8844 .9050

Means with the same letter are not significantly different.

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TRTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>19.5556</td>
<td>18</td>
<td>cle3</td>
</tr>
<tr>
<td>B</td>
<td>14.6667</td>
<td>18</td>
<td>cle2</td>
</tr>
<tr>
<td>C</td>
<td>7.0000</td>
<td>18</td>
<td>cle1</td>
</tr>
<tr>
<td>D</td>
<td>2.2222</td>
<td>18</td>
<td>sce1</td>
</tr>
<tr>
<td>D</td>
<td>2.0000</td>
<td>18</td>
<td>wat1</td>
</tr>
</tbody>
</table>

Number of Means 2 3 4 5 6

Critical Range 0.891 0.938 0.969 0.991 1.009

Duncan Grouping  Mean  N  BLOCK

A 10.2667 15 1
A
B A 10.1333 15 2
<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10.0000</td>
<td>3</td>
<td>cle1t1</td>
</tr>
<tr>
<td>A</td>
<td>9.3333</td>
<td>3</td>
<td>cle1t2</td>
</tr>
<tr>
<td>B</td>
<td>7.3333</td>
<td>3</td>
<td>cle1t3</td>
</tr>
<tr>
<td>C</td>
<td>6.0000</td>
<td>3</td>
<td>cle1t4</td>
</tr>
<tr>
<td>C</td>
<td>5.3333</td>
<td>3</td>
<td>cle1t5</td>
</tr>
<tr>
<td>D</td>
<td>4.0000</td>
<td>3</td>
<td>cle1t6</td>
</tr>
<tr>
<td>A</td>
<td>16.0000</td>
<td>3</td>
<td>cle2t1</td>
</tr>
<tr>
<td>A</td>
<td>16.0000</td>
<td>3</td>
<td>cle2t2</td>
</tr>
<tr>
<td>A</td>
<td>16.0000</td>
<td>3</td>
<td>cle2t3</td>
</tr>
<tr>
<td>A</td>
<td>16.0000</td>
<td>3</td>
<td>cle2t4</td>
</tr>
<tr>
<td>B</td>
<td>12.6667</td>
<td>3</td>
<td>cle2t5</td>
</tr>
<tr>
<td>B</td>
<td>12.0000</td>
<td>3</td>
<td>cle2t6</td>
</tr>
<tr>
<td>A</td>
<td>20.6667</td>
<td>3</td>
<td>cle3t1</td>
</tr>
<tr>
<td>A</td>
<td>20.6667</td>
<td>3</td>
<td>cle3t2</td>
</tr>
<tr>
<td>A</td>
<td>20.6667</td>
<td>3</td>
<td>cle3t3</td>
</tr>
<tr>
<td>A</td>
<td>20.6667</td>
<td>3</td>
<td>cle3t4</td>
</tr>
<tr>
<td>B</td>
<td>17.3333</td>
<td>3</td>
<td>cle3t5</td>
</tr>
<tr>
<td>B</td>
<td>17.3333</td>
<td>3</td>
<td>cle3t6</td>
</tr>
</tbody>
</table>
Appendix (6)

The SAS System  22:58

Monday, June 15, 2005

Analysis of Variance Procedure

Class Level Information

Class      Levels    Values
BLOCK       6    1 2 3 4 5 6
TRTMENT     5    clh1 clh2 clh3 sch1 wat1

Number of observations in data set = 90

Dependent Variable: Repellency

Source                  DF           Sum of Squares             Mean Square   F Value     Pr > F
Model                    9            9103.24444444           1011.47160494   1048.76     0.0001
Error                   80              77.15555556              0.96444444
Corrected Total         89            9180.40000000

R-Square                     C.V.                Root MSE            REPL Mean
0.991596                 7.632601              0.98206132          12.86666667

Source                  DF                 Anova SS             Mean Square   F Value     Pr > F
BLOCK                    5              64.40000000             12.88000000     13.35     0.0001
TRTMENT                  4            9038.84444444           2259.71111111   2343.02

Duncan's Multiple Range Test for variable: Repellency

(12)
Alpha= 0.05  df= 80  MSE= 0.964444

Number of Means  2  3  4  5

Critical Range  .6515 .6855 .7080 .7245

Means with the same letter are not significantly different.

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TRTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>28.6667</td>
<td>18</td>
<td>clh3</td>
</tr>
<tr>
<td>B</td>
<td>18.5556</td>
<td>18</td>
<td>clh2</td>
</tr>
<tr>
<td>C</td>
<td>12.3333</td>
<td>18</td>
<td>clh1</td>
</tr>
<tr>
<td>D</td>
<td>2.7778</td>
<td>18</td>
<td>sch1</td>
</tr>
<tr>
<td>E</td>
<td>2.0000</td>
<td>18</td>
<td>wat1</td>
</tr>
</tbody>
</table>

Number of Means  2  3  4  5  6

Critical Range  .7136 .7509 .7756 .7936 .8076

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>14.0000</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>13.7333</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>13.2000</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>12.5333</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>12.0000</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>E</td>
<td>11.7333</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>14.0000</td>
<td>3</td>
<td>clh1t1</td>
</tr>
<tr>
<td>A</td>
<td>13.3333</td>
<td>3</td>
<td>clh1t2</td>
</tr>
<tr>
<td>A</td>
<td>12.6667</td>
<td>3</td>
<td>clh1t3</td>
</tr>
<tr>
<td>B</td>
<td>11.3333</td>
<td>3</td>
<td>clh1t4</td>
</tr>
<tr>
<td>B</td>
<td>11.3333</td>
<td>3</td>
<td>clh1t5</td>
</tr>
<tr>
<td>B</td>
<td>11.3333</td>
<td>3</td>
<td>clh1t6</td>
</tr>
</tbody>
</table>

A  20.0000  3  clh2t1
Appendix (7)

The SAS System 22:58

Monday, June 15, 2005

Analysis of Variance Procedure
Class Level Information

Class    Levels    Values
BLOCK       6    1 2 3 4 5 6
TRTMENT     5    rlh1 rlh2 rlh3 sch1 wat1

Number of observations in data set = 90

Dependent Variable: Repellency

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>9</td>
<td>11970.75555556</td>
<td>1330.08395062</td>
<td>1582.39</td>
<td>0.0001</td>
</tr>
<tr>
<td>Source</td>
<td>DF</td>
<td>Anova SS</td>
<td>Mean Square</td>
<td>F Value</td>
<td>Pr &gt; F</td>
</tr>
<tr>
<td>---------</td>
<td>----</td>
<td>------------</td>
<td>-------------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>BLOCK</td>
<td>5</td>
<td>48.5333333</td>
<td>9.70666667</td>
<td>11.55</td>
<td>0.0001</td>
</tr>
<tr>
<td>TRTMENT</td>
<td>4</td>
<td>11922.22222</td>
<td>2980.555556</td>
<td>3545.94</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Error</th>
<th>80</th>
<th>67.2444444</th>
<th>0.84055556</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Total</td>
<td>89</td>
<td>12038.000000</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>R-Square</th>
<th>C.V.</th>
<th>Root MSE</th>
<th>REPL Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.994414</td>
<td>6.251033</td>
<td>0.91681817</td>
<td>14.66666667</td>
</tr>
</tbody>
</table>
Analysis of Variance Procedure

Duncan's Multiple Range Test for variable: Repellency

Alpha= 0.05  df= 80  MSE= 0.840556

Number of Means  2  3  4  5

Critical Range .6082 .6399 .6610 .6763

Means with the same letter are not significantly different.

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TRTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>32.889</td>
<td>18</td>
<td>rlh3</td>
</tr>
<tr>
<td>B</td>
<td>19.889</td>
<td>18</td>
<td>rlh2</td>
</tr>
<tr>
<td>C</td>
<td>15.778</td>
<td>18</td>
<td>rlh1</td>
</tr>
<tr>
<td>D</td>
<td>2.778</td>
<td>18</td>
<td>sch1</td>
</tr>
<tr>
<td>E</td>
<td>2.000</td>
<td>18</td>
<td>wat1</td>
</tr>
</tbody>
</table>

Number of Means  2  3  4  5  6

Critical Range .6662 .7010 .7241 .7409 .7539

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15.733</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>15.333</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>14.933</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>14.400</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>13.867</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>D</td>
<td>13.733</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>17.333</td>
<td>3</td>
<td>rlh1t1</td>
</tr>
<tr>
<td>A</td>
<td>16.000</td>
<td>3</td>
<td>rlh1t2</td>
</tr>
<tr>
<td>B</td>
<td>16.000</td>
<td>3</td>
<td>rlh1t3</td>
</tr>
<tr>
<td>B</td>
<td>15.333</td>
<td>3</td>
<td>rlh1t4</td>
</tr>
<tr>
<td>B</td>
<td>15.333</td>
<td>3</td>
<td>rlh1t5</td>
</tr>
</tbody>
</table>
## Appendix (8)

The SAS System          22:58

Monday, June 15, 2005

Analysis of Variance Procedure
Class Level Information

<table>
<thead>
<tr>
<th>Class</th>
<th>Levels</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOCK</td>
<td>6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>TRTMENT</td>
<td>9</td>
<td>cle1 clh1 nle1 nlh1 nse1 nsh1 rlh1 ssi1 wat1</td>
</tr>
</tbody>
</table>

Number of observations in data set = 162

Dependent Variable: Repellency
Source                  DF           Sum of Squares             Mean Square   F Value     Pr > F
                                    Model                   13           15646.46913580           1203.57454891    543.28     0.0001
                                    Error                  148             327.87654321              2.21538205
                                    Corrected Total        161           15974.34567901
                                    R-Square                     C.V.                Root MSE            REPL Mean
                                                      0.979475                 9.037608              1.48841595          16.46913580
Source                  DF                 Anova SS             Mean Square   F Value     Pr > F
                                    BLOCK                    5             351.90123457             70.38024691     31.77     0.0001
                                    TRTMENT                  8           15294.56790123           1911.82098765    862.98
The SAS System          22:58
Monday, June 15, 2005

Analysis of Variance Procedure

Duncan's Multiple Range Test for variable: Repellency

Alpha= 0.05  df= 148  MSE= 2.215382

Number of Means  2  3  4  5  6  7  8  9

Critical Range   0.980 1.032 1.066 1.091 1.111 1.127 1.140 1.151

Means with the same letter are not significantly different.

Duncan Grouping             Mean       N   TRTMENT

A           32.8889     18  rlh1
B           28.6667     18  clh1
C           19.7778     18  nsh1
C           19.5556     18  ssi1
C           19.5556     18  cle1
C           19.5556     18  ssi1
D           10.5556     18  nlh1
Duncan's Multiple Range Test for variable: Repellency

Alpha= 0.05  df= 148  MSE= 2.215382

Number of Means  2  3  4  5  6

Critical Range  .8005 .8426 .8706 .8912 .9072

Means with the same letter are not significantly different.

<table>
<thead>
<tr>
<th>Duncan Grouping</th>
<th>Mean</th>
<th>N</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>18.2222</td>
<td>27</td>
<td>1</td>
</tr>
<tr>
<td>A</td>
<td>18.1481</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>17.1111</td>
<td>27</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>16.0000</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>14.7407</td>
<td>27</td>
<td>5</td>
</tr>
<tr>
<td>D</td>
<td>14.5926</td>
<td>27</td>
<td>6</td>
</tr>
</tbody>
</table>