Other Materials

- Sample Grain Grading Problems
- Junior Grain Grading Contest Book
- Blank Identification Sheets
- Blank Grain Grading Answer Sheet
- Grain Grading Charts
## Grain Grading Problems & Worksheet - Sample Problem Set 2011-2015

<table>
<thead>
<tr>
<th>Sample #1</th>
<th>Test wt. _______</th>
<th>Heat Damage _______</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Corn</td>
<td>5.0%</td>
<td></td>
</tr>
<tr>
<td>Yellow Corn</td>
<td>95.0%</td>
<td></td>
</tr>
<tr>
<td>White popcorn</td>
<td>2.0%</td>
<td></td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>55.0</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td>11.2%</td>
<td></td>
</tr>
<tr>
<td>Insect damage</td>
<td>2.0%</td>
<td></td>
</tr>
<tr>
<td>Mold damage</td>
<td>1.1%</td>
<td></td>
</tr>
<tr>
<td>Broken corn through sieve</td>
<td>2.6%</td>
<td></td>
</tr>
<tr>
<td>live weevils per 1000g</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample #2</th>
<th>Test wt. _______</th>
<th>Heat Damage _______</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow Flint Corn</td>
<td>95.0%</td>
<td></td>
</tr>
<tr>
<td>White Dent Corn</td>
<td>5.0%</td>
<td></td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>57.9</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td>16.0%</td>
<td></td>
</tr>
<tr>
<td>Broken corn through sieve</td>
<td>8.0%</td>
<td></td>
</tr>
<tr>
<td>Heat damage (severe)</td>
<td>2.9%</td>
<td></td>
</tr>
<tr>
<td>Slight damage by heat</td>
<td>0.3%</td>
<td></td>
</tr>
<tr>
<td>Crotalaria in 1000g</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Sour odor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample #3</th>
<th>Test wt. _______</th>
<th>Heat Damage _______</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow Corn</td>
<td>90.0%</td>
<td></td>
</tr>
<tr>
<td>Kernels that are 50% red</td>
<td>10.0%</td>
<td></td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>58.0</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td>14.0%</td>
<td></td>
</tr>
<tr>
<td>Corn cobs on top of sieve</td>
<td>1.1%</td>
<td></td>
</tr>
<tr>
<td>Giant foxtail</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>Sprout damage</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample #4</th>
<th>Test wt. _______</th>
<th>Heat Damage _______</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Corn</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>57.3</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td>19.0%</td>
<td></td>
</tr>
<tr>
<td>Yellow sweet corn</td>
<td>5.0%</td>
<td></td>
</tr>
<tr>
<td>Mold damage</td>
<td>1.9%</td>
<td></td>
</tr>
<tr>
<td>Sprout damage</td>
<td>2.4%</td>
<td></td>
</tr>
<tr>
<td>16 live moths</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Sample #5

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow soybeans</td>
<td>100.0%</td>
</tr>
<tr>
<td>Immature soybeans</td>
<td>10.0%</td>
</tr>
<tr>
<td>Corn</td>
<td>3.0%</td>
</tr>
<tr>
<td>Foreign material through sieve</td>
<td>2.1%</td>
</tr>
<tr>
<td>Damage by heat (slight)</td>
<td>2.0%</td>
</tr>
<tr>
<td>Heat damage (severe)</td>
<td>1.9%</td>
</tr>
<tr>
<td>Green garlic bulbs in 1000g</td>
<td>6.0%</td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>48.0</td>
</tr>
<tr>
<td>Moisture</td>
<td>21.3%</td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
</tr>
</tbody>
</table>

#### Test wt. ________ Hea Damage _______

#### Moisture ________ BCFM/FM ________

#### DKT ________ Split/Defect ________

#### Odor ________ Shru & Brkn ________

### Sample #6

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow soybeans</td>
<td>89.0%</td>
</tr>
<tr>
<td>Bi-colored soybeans</td>
<td>11.0%</td>
</tr>
<tr>
<td>Sprout damage</td>
<td>1.3%</td>
</tr>
<tr>
<td>Frost damage</td>
<td>0.7%</td>
</tr>
<tr>
<td>Damage by heat (slight)</td>
<td>4.0%</td>
</tr>
<tr>
<td>Foreign material</td>
<td>3.0%</td>
</tr>
<tr>
<td>Test weight</td>
<td>56.0</td>
</tr>
<tr>
<td>Moisture</td>
<td>16.0%</td>
</tr>
<tr>
<td>Dry garlic bulblets per 1000g</td>
<td>3</td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
</tr>
</tbody>
</table>

#### Test wt. ________ Hea Damage _______

#### Moisture ________ BCFM/FM ________

#### DKT ________ Split/Defect ________

#### Odor ________ Shru & Brkn ________

### Sample #7

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft red winter wheat</td>
<td>96.5%</td>
</tr>
<tr>
<td>Hard red winter wheat</td>
<td>2.0%</td>
</tr>
<tr>
<td>Durum wheat</td>
<td>1.5%</td>
</tr>
<tr>
<td>Dockage (grams per 1000 grams)</td>
<td>26</td>
</tr>
<tr>
<td>Moisture</td>
<td>13.5%</td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>60.3</td>
</tr>
<tr>
<td>Damaged kernels (total)</td>
<td>1.0%</td>
</tr>
<tr>
<td>Foreign material</td>
<td>0.5%</td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
</tr>
</tbody>
</table>

#### Test wt. ________ Hea Damage _______

#### Moisture ________ BCFM/FM ________

#### DKT ________ Split/Defect ________

#### Odor ________ Shru & Brkn ________

### Sample #8

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft red winter wheat</td>
<td>100.0%</td>
</tr>
<tr>
<td>Dockage (grams per 1000 grams)</td>
<td>10</td>
</tr>
<tr>
<td>Moisture</td>
<td>14.8%</td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>62.0</td>
</tr>
<tr>
<td>Heat damage</td>
<td>0.6%</td>
</tr>
<tr>
<td>Sprout damaged oats</td>
<td>2.0%</td>
</tr>
<tr>
<td>Insect damage</td>
<td>1.4%</td>
</tr>
<tr>
<td>Damage by heat (slight)</td>
<td>3.0%</td>
</tr>
<tr>
<td>Foreign material</td>
<td>0.6%</td>
</tr>
<tr>
<td>Shrunken and broken kernels</td>
<td>0.5%</td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
</tr>
</tbody>
</table>

#### Test wt. ________ Hea Damage _______

#### Moisture ________ BCFM/FM ________

#### DKT ________ Split/Defect ________

#### Odor ________ Shru & Brkn ________

Over ➔
### Grain Grading Problems & Worksheet - Sample Problem Set 2011-2015 Answers

(This page is not graded)

#### Sample #1

<table>
<thead>
<tr>
<th>Item</th>
<th>U.S. No. 2</th>
<th>Test wt.</th>
<th>Heat Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Corn</td>
<td></td>
<td>55.0</td>
<td></td>
</tr>
<tr>
<td>Yellow Corn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White popcorn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td></td>
<td>11.2</td>
<td></td>
</tr>
<tr>
<td>Insect damage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mold damage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broken corn through sieve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>live weevils per 1000g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>U.S. No. 4</strong></td>
<td></td>
<td></td>
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</table>

#### Sample #2

<table>
<thead>
<tr>
<th>Item</th>
<th>U.S. No. 1</th>
<th>Test wt.</th>
<th>Heat Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow Flint Corn</td>
<td></td>
<td>57.9</td>
<td></td>
</tr>
<tr>
<td>White Dent Corn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td></td>
<td>57.9</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td></td>
<td>16.0</td>
<td></td>
</tr>
<tr>
<td>Broken corn through sieve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat damage (severe)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slight damage by heat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crotalaria in 1000g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sour odor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>U.S. No. 5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

#### Sample #3

<table>
<thead>
<tr>
<th>Item</th>
<th>U.S. No. 1</th>
<th>Test wt.</th>
<th>Heat Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow Corn</td>
<td></td>
<td>58.0</td>
<td></td>
</tr>
<tr>
<td>Kernels that are 50% red</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td></td>
<td>58.0</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td></td>
<td>14.0</td>
<td></td>
</tr>
<tr>
<td>Corn cobs on top of sieve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giant foxtail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sprout damage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sample #4

<table>
<thead>
<tr>
<th>Item</th>
<th>U.S. No. 1</th>
<th>Test wt.</th>
<th>Heat Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Corn</td>
<td></td>
<td>57.3</td>
<td></td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td></td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Moisture</td>
<td></td>
<td>19.0</td>
<td></td>
</tr>
<tr>
<td>Yellow sweet corn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mold damage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sprout damage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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## Grain Grading Problems & Worksheet - Sample Problem Set 2011-2015 Answers

### Sample #5

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow soybeans</td>
<td>100.0%</td>
</tr>
<tr>
<td>Immature soybeans</td>
<td>10.0%</td>
</tr>
<tr>
<td>Corn</td>
<td>3.0%</td>
</tr>
<tr>
<td>Foreign material through sieve</td>
<td>2.1%</td>
</tr>
<tr>
<td>Damage by heat (slight)</td>
<td>2.0%</td>
</tr>
<tr>
<td>Heat damage (severe)</td>
<td>1.9%</td>
</tr>
<tr>
<td>Green garlic bulbs in 1000g</td>
<td>6</td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>48.0</td>
</tr>
<tr>
<td>Moisture</td>
<td>21.3%</td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
</tr>
</tbody>
</table>

### Sample #6

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow soybeans</td>
<td>89.0%</td>
</tr>
<tr>
<td>Bi-colored soybeans</td>
<td>11.0%</td>
</tr>
<tr>
<td>Sprout damage</td>
<td>1.3%</td>
</tr>
<tr>
<td>Frost damage</td>
<td>0.7%</td>
</tr>
<tr>
<td>Damage by heat (slight)</td>
<td>4.0%</td>
</tr>
<tr>
<td>Foreign material</td>
<td>3.0%</td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>56.0</td>
</tr>
<tr>
<td>Moisture</td>
<td>16.0%</td>
</tr>
<tr>
<td>Dry garlic bublets per 1000g</td>
<td>3</td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
</tr>
</tbody>
</table>

### Sample #7

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft red winter wheat</td>
<td>96.5%</td>
</tr>
<tr>
<td>Hard red winter wheat</td>
<td>2.0%</td>
</tr>
<tr>
<td>Durum wheat</td>
<td>1.5%</td>
</tr>
<tr>
<td>Dockage (grams per 1000 grams)</td>
<td>26</td>
</tr>
<tr>
<td>Moisture</td>
<td>13.5%</td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>60.3</td>
</tr>
<tr>
<td>Damaged kernels (total)</td>
<td>1.0%</td>
</tr>
<tr>
<td>Foreign material</td>
<td>0.5%</td>
</tr>
<tr>
<td>Natural odor</td>
<td></td>
</tr>
</tbody>
</table>

### Sample #8

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft red winter wheat</td>
<td>100.0%</td>
</tr>
<tr>
<td>Dockage (grams per 1000 grams)</td>
<td>10</td>
</tr>
<tr>
<td>Moisture</td>
<td>14.8%</td>
</tr>
<tr>
<td>Test weight (lb/bu)</td>
<td>62.0</td>
</tr>
<tr>
<td>Heat damage</td>
<td>0.6%</td>
</tr>
<tr>
<td>Sprout damaged oats</td>
<td>2.0%</td>
</tr>
<tr>
<td>Insect damage</td>
<td>1.4%</td>
</tr>
<tr>
<td>Damage by heat (slight)</td>
<td>3.0%</td>
</tr>
<tr>
<td>Foreign material</td>
<td>0.6%</td>
</tr>
<tr>
<td>Shrunken and broken kernels</td>
<td>0.5%</td>
</tr>
<tr>
<td>GRADE AND KIND</td>
<td>TRADE NAME</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>U.S. No. 4 Yellow Corn, Infested</td>
<td>55.0 lbs</td>
</tr>
<tr>
<td>Sample #1</td>
<td>remark:</td>
</tr>
<tr>
<td>U.S. Sample Grade Yellow Corn, Flint</td>
<td>57.9 lbs</td>
</tr>
<tr>
<td>Sample #2</td>
<td>remark: Crotalaria Sour</td>
</tr>
<tr>
<td>U.S. No. 1 Mixed Corn</td>
<td>58.0 lbs</td>
</tr>
<tr>
<td>Sample #3</td>
<td>remark: Yellow Corn 90.0% Red Corn 10.0%</td>
</tr>
<tr>
<td>U.S. No. 4 White Corn, Infested</td>
<td>57.3 lbs</td>
</tr>
<tr>
<td>Sample #4</td>
<td>remark:</td>
</tr>
</tbody>
</table>
## GRADE AND KIND

### U.S. Sample Grade  Yellow Soybeans, Garlicky

<table>
<thead>
<tr>
<th>Test Weight Per Bushel</th>
<th>Moisture</th>
<th>Heat Damaged Kernels</th>
<th>Damaged Kernels (Total)</th>
<th>Foreign Material</th>
<th>Splits</th>
<th>Broken Corn and Foreign Material</th>
<th>Shrunk and Broken Kernels</th>
<th>Defects (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*48.0 lbs</td>
<td>*21.3 %</td>
<td>1.9 %</td>
<td>*13.9 %</td>
<td>*5.1 %</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

**Remarks**

Sample #5

### GRADE AND KIND

### U.S. No. 4  Mixed Soybeans

<table>
<thead>
<tr>
<th>Test Weight Per Bushel</th>
<th>Moisture</th>
<th>Heat Damaged Kernels</th>
<th>Damaged Kernels (Total)</th>
<th>Foreign Material</th>
<th>Splits</th>
<th>Broken Corn and Foreign Material</th>
<th>Shrunk and Broken Kernels</th>
<th>Defects (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*56.0 lbs</td>
<td>*16.0 %</td>
<td>%</td>
<td>*6.0 %</td>
<td>3.0 %</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

**Remarks**

*Yellow Soybeans 89.0%  *Bi-colored Soybeans 11.0%

Sample #6

### GRADE AND KIND

### U.S. No. 2  Soft Red Winter Wheat, Dockage 2.6%

<table>
<thead>
<tr>
<th>Test Weight Per Bushel</th>
<th>Moisture</th>
<th>Heat Damaged Kernels</th>
<th>Damaged Kernels (Total)</th>
<th>Foreign Material</th>
<th>Splits</th>
<th>Broken Corn and Foreign Material</th>
<th>Shrunk and Broken Kernels</th>
<th>Defects (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*60.3 lbs</td>
<td>*13.5 %</td>
<td>%</td>
<td>1.0 %</td>
<td>*0.5 %</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>1.5 %</td>
</tr>
</tbody>
</table>

**Remarks**

Contrasting Classes 1.5%  Wheat of Other Classes (Total) 3.5%

Sample #7

### GRADE AND KIND

### U.S. No. 4  Soft Red Winter Wheat, Dockage 1.0%

<table>
<thead>
<tr>
<th>Test Weight Per Bushel</th>
<th>Moisture</th>
<th>Heat Damaged Kernels</th>
<th>Damaged Kernels (Total)</th>
<th>Foreign Material</th>
<th>Splits</th>
<th>Broken Corn and Foreign Material</th>
<th>Shrunk and Broken Kernels</th>
<th>Defects (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*62.0 lbs</td>
<td>*14.8 %</td>
<td>*0.6 %</td>
<td>*7.0 %</td>
<td>*2.6 %</td>
<td>%</td>
<td>%</td>
<td>0.5 %</td>
<td>*10.1 %</td>
</tr>
</tbody>
</table>

**Remarks**

Sample #8
Junior Participant
2011-2015
Grain Grading Handbook

This book is for Junior participants *only* during a 4-H/FFA Crops Evaluation Contest.
Corn Grading

What is corn?
Corn is defined as any grain which consists of 50 percent or more of whole kernels of shelled dent corn and/or flint corn. It may not contain more than 10 percent of other grains for which grading standards have been established. If it does not meet these standards, the lot is considered mixed grain. However, in this event there will be no mixed grain so any grain other than dent or flint corn is foreign material. *Popcorn, sweet corn, and blue corn in corn grading are foreign material.*

Class and damaged kernels are determined after the removal of foreign material. All percentages shall be determined on the grain as a whole.

Corn Grain Class
There are three possible classes of corn. Percentage of corn classes should be rounded to the nearest tenth.

- **Yellow Corn** - Yellow-kernelled corn that does not contain more than 5 percent corn of other colors.
- **White Corn** - White-kernelled corn that does not contain more than 2 percent corn of other colors.
- **Mixed Corn** - Corn that does not meet the color requirements of white or yellow corn.
  When completing the grain inspection certificate (answer sheet) record the percent of each corn (class) from greatest to least in percentage to nearest tenth within the "Remarks" section.
- **Other colors** - White corn with a slight tinge of pink is white corn. Yellow kernels with red streaks covering less than 50.0% of the kernel are considered yellow corn. If more than 50.0% of the kernel is red streaked, then the corn is considered Corn of Other Colors. The rules to percentages to determine if the corn is Yellow Corn or Mixed Corn will apply. Since this is not a determining factor in corn, students should write “Red Corn” in the remarks section if it is a determining factor for corn grain class.

Moisture
Moisture is not a grading factor in commercial grain; nevertheless, a loss of quality in stored corn hinges largely on the amount of moisture present in the grain. Moisture is an important factor in most discount schedules.

Moisture is recorded to the nearest tenth of a percent.

- Example: 16.27% is recorded as 16.3%

Test Weight
Test weight is the amount of weight the grain must have to make up a bushel. Good quality corn of low moisture content can be expected to have a good test weight.

Test weight is recorded to the nearest tenth.

- Example: 52.34 lbs/bu is recorded as 52.3 lbs/bu
Broken Corn and Foreign Material
Broken corn and foreign material is normally determined by the use of a sieve; broken corn and all matter other than corn that pass through a sieve having round openings 12/64th of an inch in diameter, and all matter other than corn that remain on the sieve after screening are included in this factor.

Examples of foreign material
- Sweet corn
- Popcorn
- Blue corn
- Soybeans not passing through the sieve
- Grains or weeds dropping through the sieve
- Rodent excreta and stones (cinders are stones)
  - Note: If the total weight of stones in a 1-1/4 quarts (1,000 gm.) sample exceeds 0.1 percent of the sample weight the sample must be graded "U.S. Sample Grade". When applicable, record "Stones" in the Remarks section of the certificate.

Do not enter this percentage in the foreign material column on the answer sheet. There is a column for broken corn and foreign material.

Broken corn and foreign material is recorded to nearest tenth of a percent.

Heat Damaged Kernels
Heat damaged corn is severely discolored (brown to black) either from external heating, such as improper drying, or from heating as a result of excessive moisture in storage and spoilage. Kernels in this category will be included in heat damage AND damaged kernels (total).

Slightly damaged corn shows some discoloration (light to dark tan) and therefore is not as severely damaged. The two are not added together to determine heat damaged kernels. Slight damaged corn will only be included in damaged kernels (total).

Record to the nearest tenth of a percent.

Damaged Kernels (Total)
Damaged kernels (total) includes all types of damage found in corn. Darkening of the germ is one of the first indicators of corn declining in quality or that the amount of damage is increasing.

Examples of damaged kernels
- mold damage
- heat damage
- sprout damage
- frost damage
- badly ground-damaged
- badly weather-damaged
- insect damage (not chewed)
- kernels that have become slightly discolored from heat

Note that the percent of heat damage is added to other types of damage to obtain the percent of Damaged Kernels (Total).

Record to the nearest tenth of a percent.
Musty, Sour, or Heating
A sample in any of these conditions is "U.S. Sample Grade."

Musty- Musty, ground, or moldy odor

Sour- Sour, fermenting, or pigpen odor

Heating- Corn developing a high temperature from excessive respiration. Corn will usually have a musty or sour odor. For this contest, samples that are affected by heating will state "corn affected by high temperature" OR "heating."

Record the applicable words in the “Remarks” section of the grading certificate.

Commercially Objectionable Foreign Odor
If the corn carries an odor which does not normally occur in grain and which, for this reason, would render the corn unfit for its normal commercial use, then it is graded "U.S. Sample Grade."

This includes animal hides, decaying animal or vegetable parts, fertilizer, skunk, smoke, strong weed, oil, etc.

Record the words "Commercially Objectionable Foreign Odor" in the “Remarks” section of the certificate.

Distinctly Low Quality
The Federal Grain Inspection Service reserves the use of this term to describe corn when it is obviously of inferior quality and the existing grading factors or guidelines do not accurately reflect the inferior condition.

When a sampler is collecting corn from a rail car, he/she can notice whether the grain also includes two or more large stones, pieces of glass, pieces of concrete, sticks of lumber, or scrap metal or debris which are visible to the sampler but are too large to enter the sampling device, such as a grain probe.

This grading factor should not be confused with the other conditions which can also cause corn to be "Sample Grade," such as animal filth, cockleburs, crotalaria seed, etc.

Record the words Distinctly Low Quality (Reason).

Sample Grade Factors
There is a list of factors that does not meet U.S. number standards and make the sample “Sample Grade” listed on the bottom of the grading chart. These include animal filth, cockleburs, crotalaria seed. If any of these are reported in the sample, participants should grade the sample “Sample Grade” and write the word in the Remarks box.

How to record in the “Remarks” box (see chart for details)

- Stones
- Glass
- Crotalaria Seeds
- Castor Beans
- Unknown Foreign Substance
- Toxic Substance
- Cockleburs
- Animal Filth
Special Factors, Special Grade Requirements, Special Grade Designations

Special grades are conditions which should be noted but **do not** affect the numerical grade.

**Flint**

Corn of any class which consists of **95 percent or more** of flint corn; flint corn is graded and designated according to the grade requirements of the standards applicable to such corn if it were not flint, and the word "Flint" is added to and made a part of the grade designation, immediately following the class name.

Flint corn is a different subspecies of corn with hard starch rather than soft starch as in dent corn.

**Flint and Dent**

Corn of any class which consists of a mixture of flint and dent corn containing **more than 5 percent but less than 95 percent of flint corn**. The words "Flint and Dent" and the percentage of flint corn rounded to the tenth are added to and made a part of the grade designation immediately following the special grade.

**Infested**

Any corn sample 1-1/4 quarts or 1000 g that contains one of the following:

- 2 or more live weevils
- 1 live weevil and 5 or more other live insects injurious to stored grain
- 10 or more other live insects injurious to stored grain

Infested is the condition of live weevils or grain-damaging insects in the grain.

Infested corn is graded and designated according to the grade requirements of the standards applicable to such corn if it was not infested. The word "Infested" is added to and made a part of the grade designation.

**Waxy Corn**

Corn that consists of 95% or more waxy corn. When applicable, the word “Waxy” will be last within the grade designation.
Soybean Grading

What are soybeans?
Soybeans are any grain that consists of 50 percent or more of whole or broken soybeans which will not pass readily through an 8/64 sieve and not more than 10 percent of other grains for which grading standards have been established.

Class, splits, and damaged kernels are determined after foreign material is removed.

Soybean Grain Class
There are two possible classes of soybeans. Percentage of soybean classes should be rounded to the nearest tenth.

- **Yellow Soybeans** - Soybeans that have a yellow seed coat and are yellow in cross-section. Sample does not contain more than 10 percent of other colors.
- **Mixed Soybeans** - Any mixture of soybeans that does not meet the requirements of yellow soybeans (See Soybeans of Other Colors). When completing the grain inspection certificate, record the percent of each color of soybeans from greatest to least in the Remarks section.
- **Soybeans of Other Colors** - These colors serve as a grading factor in yellow soybeans. When soybeans of other colors (black, brown, and bi-colored) occur in quantities of 10 percent or less, the percentage is a factor in determining the grade of yellow soybeans. When other colors exceed 10 percent, the sample is then classified as Mixed Soybeans (see above). Soybeans of other colors is listed in the Remarks section.

Example

<table>
<thead>
<tr>
<th>Soybean Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow Soybeans</td>
<td>85.0%</td>
</tr>
<tr>
<td>Bi-color Soybeans</td>
<td>15.0%</td>
</tr>
<tr>
<td>Yellow Soybeans</td>
<td>95.0%</td>
</tr>
<tr>
<td>Bi-color Soybeans</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

Test Weight
Test weight is the amount of weight the grain must have to make up a bushel. Good quality seed of low moisture content can be expected to have a good test weight. **Test weight has no effect on the grade of soybean samples.**

Record test weight rounded to the nearest tenth.

Moisture
The moisture content of soybean seed is extremely important but it is no longer used as a grading factor. Loss of quality of stored seed hinges largely on the amount of moisture present in the sample. Moisture is an important factor in most discount schedules.

Record moisture to the nearest tenth of a percent.
**Splits**
Any soybean having **more than** 1/4 of the seed missing is considered a split. Splits are determined on a portion of approximately 125 grams after the removal of all foreign material.

This factor includes only **sound splits** - those free from damage.

Damaged splits are **only** recorded in Damaged Kernels (Total).

Splits are recorded to the nearest tenth of a percent.

**Heat Damage**
Heat damaged soybeans are **severely** discolored (black or dark brown) either from external heating, such as improper drying, or from heating as a result of excess moisture and spoiling. Almost all heat damage is the result of storing grain too wet. Soybeans in this category will be included in heat damage **AND** Damaged Kernels (Total).

Slightly damaged soybeans show some discoloration (light to dark tan) and therefore are not as severely damaged. The two are **not** added together to determine heat damaged kernels. Slight damaged soybeans will only be included in Damaged Kernels (Total).

Record heat-damaged kernels to the nearest tenth of a percent.

**Damaged Kernels (Total)**
This factor includes **all** types of damage found in whole and pieces of soybeans.

Examples of Damaged Kernels
  - heat damage
  - sprout damage
  - frost damage
  - immature seed
  - ground-damage
  - mold damage
  - insect damage (not chewed)
  - kernels that have become slightly discolored from heat
  - heat damage
  - stink bug stung kernels**

**Stink bug stung kernels are considered damaged kernels at the rate of 1/4 of actual total percentage of stung kernels**

Example: 12 grams is considered as 3 grams of damage

Record Damage Kernels (Total) to the nearest tenth of a percent.
Foreign Material
Foreign material is normally determined by the use of a sieve and separated into coarse and fine foreign material.

Coarse foreign material includes material that does not pass through an 8/64 inch sieve and made on 1000 grams.

Fine foreign material includes material that passes through an 8/64 inch sieve and material and pieces of soybean that remains on top of the sieve after sieving. This test is made on 125 grams.

Examples of foreign material
- corn
- cockleburs
- sticks
- stalks
- rodent excreta
- stones
- other grains

Record to the nearest tenth of a percent.

Distinctly Low Quality
The Federal Grain Inspection Service reserves the use of this term to describe soybeans when it is obviously of inferior quality and the existing grading factors or guidelines do not accurately reflect the inferior condition.

When a sampler is collecting soybeans from a rail car, he/she can notice whether the grain also includes two or more large stones, pieces of glass, pieces of concrete, sticks of lumber, or scrap metal or debris which are visible to the sampler but are too large to enter the sampling device, such as a grain probe.

This grading factor should not be confused with the other conditions which can also cause soybeans to be “Sample Grade”, such as animal filth, cockleburs, crotalaria seed, etc. Record the words Distinctly Low Quality (Reason).

(See corn for example of how to record).

Musty, Sour or Heating
A sample in any of these conditions is "U.S. Sample Grade".

Musty- Musty, ground, or moldy odor

Sour- Sour, fermenting, or pigpen odor

Heating- Soybeans developing a high temperature from excessive respiration. Soybeans will usually have a musty or sour odor. For this contest, samples that are affected by heating will state “Soybeans affected by high temperature” OR “heating.”

Record the applicable words in the “Remarks” section of the grading certificate.

(See corn for example of how to record)
Commercially Objectionable Foreign Odor
If the soybeans carry an odor which does not normally occur in grain and which, for this reason, would render the soybeans unfit for its normal commercial use, then it is graded "U.S. Sample Grade."

This includes animal hides, decaying animal or vegetable parts, fertilizer, skunk, smoke, strong weed, oil, etc.

Record the words "Commercially Objectionable Foreign Odor" in the “Remarks” section of the certificate.

(See corn for example of how to record)

Sample Grade Factors
There is a list of factors that automatically make the sample “Sample Grade” listed on the bottom of the grading chart. These include animal filth, cockleburs, crotalaria seed. If any of these are reported in the sample, participants should grade the sample “Sample Grade” and write the word in the “Remarks” box.

How to record in the “Remarks” box (see chart for details)
- Stones
- Glass
- Crotalaria Seeds
- Castor Beans
- Unknown Foreign Substance
- Toxic Substance
- Cockleburs
- Animal Filth
- Heating
- Distinctly Low Quality (Reason)

Cumulative Total
If a cumulative total of 11 or more sample grade factors are found, the sample is graded "U.S. Sample Grade."

These factors include any combination of animal filth, castor beans, crotalaria seeds, glass, stones, and any unknown foreign substance.

When applicable, record “Cumulative Total” in the “Remarks” section. You are not required to list the factors that cumulate to this total.

Special Factors, Special Grade Requirements, Special Grade Designations
Special grades are conditions which should be noted but do not affect the numerical grade.

Garlicky
Specific types of garlic bulbs found in the sample may be considered a special factor.

Green bulbs- husk is still intact, contains three or more green bulblets in 1000 grams

Dry bulbs- husk is dry or missing, 3 dry bulbs= 1 green bulb

The word “Garlicky” is added to and made a part of the grade designation. A garlic odor is not a basis for "Garlicky."
Infested
Any soybean sample that contains one of the following:
- two or more live weevils
- one live weevil and 5 or more other live insects injurious to stored grain
- 10 or more other live insects injurious to stored grain

Infested is the condition of live weevils or grain-damaging insects in the grain.

Infested soybeans are graded and designated according to the grade requirements of the standards applicable to such soybeans if it was not infested. The word "Infested" is added to and made a part of the grade designation.

Purple Mottled or Stained
Soybeans that are discolored with pink or purple seed coats, dirt or dirt-like substance, or pokeberry stains, as determined on a portion of 400 grams with the use of an FGIS Interpretive Line Print. The Interpretive Line Prints are help tools for inspectors to judge whether or not a kernel is damage or not.

Samples with this condition will state “Purple Mottled or Stained” as the description.

The words "Purple Mottled or Stained" are added to and made part of the grade designation.
Wheat Grading

What is Wheat?
Wheat is any grain of common wheat, club wheat, and durum wheat, which before the removal of dockage, consists of 50 percent or more of these wheats and not more than 10 percent of other grains for which standards have been established and which, after the removal of dockage, contains 50 percent or more of whole kernels of one or more of these wheats.


Soft Red Winter Wheat is the only wheat class that will be graded in this event, and the following discussion will pertain only to Soft Red Winter Wheat. The class Soft Red Winter Wheat includes all varieties of Soft Red Winter Wheat. There are no subclasses in this class.

Basis of Determination
Each determination of dockage, moisture, temperature, odor, garlic, live weevils or other insects injurious to stored grain, and distinctly low quality completed on the grain as received when taken from an incoming truck, rail car, etc. All other "tests" are conducted after dockage has been removed.

Test Weight
Test weight is the amount of weight the grain must have to make up a bushel. Good quality wheat of low moisture content can be expected to have a good test weight.

Record test weight rounded to the nearest tenth of a percent.

Moisture
The moisture content of wheat seed is extremely important but it is no longer used as a grading factor. Loss of quality of stored seed hinges largely on the amount of moisture present in the sample. Moisture is an important factor in most discount schedules.

Moisture is recorded to the nearest tenth of a percent.

Dockage
The word "dockage" means weed seed, weed stems, chaff, straw, grain other than wheat, sand, soil, and any other material other than wheat, that can be removed readily from the wheat by the use of appropriate sieves and cleaning devices. Also, the underdeveloped, shriveled, and small pieces of wheat kernels removed in properly separating the material other than wheat plus that which cannot be recovered by properly rescreening or recleaning is also a part of dockage.

Determination of dockage is made in the initial sieving. Shrunken and broken kernels and foreign material are determined after the dockage has been removed. Dockage is determined from a 1,000 gram sample.

The percent dockage is rounded and reported to the nearest tenth percent. Always list dockage last of all of the special factors. See example on the special factors page.
Foreign Material
Foreign material refers to all matter other than wheat, including stones, that is not separated from the wheat in the proper removal of dockage.

Examples of foreign material
- corn
- cockleburs
- sticks
- stalks
- rodent excreta
- stones
- other grains
- ergoty wheat

Record to the nearest tenth of a percent.

Contrasting Classes
A contrasting class in soft red winter wheat is durum wheat.

Soft red winter wheat flour is especially suited for cake mixes while flour from durum wheat is required for pasta production. Thus, there is a "contrast" in use. Each wheat has its own "Contrasting Classes."

Record in Remarks area of certificate "Contrasting Classes" and state to the nearest tenth of a percent.

Wheat of Other Classes (Total)
This factor spotlights the presence of other wheats in a sample. Some mixtures may be of minor importance. For example, if a soft red winter wheat contained 8.0% hard red winter wheat, the flour from such a mixture might be acceptable, but not the most desirable for cake mixes when compared to flour from 100.0% soft red winter wheat.

Wheat of Other Classes (Total) also includes percent of Contrasting Classes.

Record "Wheat of Other Classes (Total)" and state to the nearest tenth of a percent in the "Remarks" section.

Other Grains
Other grains as used in this discussion are:
- rye
- oats
- corn
- grain sorghum
- barley
- flax
- emmer
- spelt
- einkorn
- polish wheat
- poulard wheat
- cultivated buckwheat
- soybeans

These grains are also considered foreign material, even when damaged.
Heat Damage
Heat damage in wheat is severely discolored (black or dark brown) kernels and pieces of kernels of wheat and other grains caused either from external heating, such as improper drying, or from heating as a result of excess moisture and spoiling. Almost all heat damage is the result of storing grain too wet. Soybeans in this category will be included in heat damage AND damaged kernels (total).

Slightly damaged wheat and other grains show some discoloration (light to dark tan) and therefore are not as severely damaged. The two are not added together to determine heat damaged kernels. Slight damaged wheat and other grains will only be included in damaged kernels (total).

Record heat-damaged kernels to the nearest tenth of a percent.

Insect Damaged Wheat Kernels
Wheat is determined to be “U.S. Sample Grade” when 32 or more insect damaged kernels per 100 grams are found. This is up to a 3 stage process. For simplicity in this event, the number of kernels per 100 gram will be given. Do not confuse insect chewed with insect damage. When applicable, include in the “Remarks” section of the certificate "32 or more Insect Damaged Kernels."

Damaged Kernels (Total)
This factor includes all types of damage found in wheat. It is very inclusive in that kernels and pieces of kernels of wheat plus other grains (Ex. Sprout-damaged Oats) are also included.

Examples of Damaged Kernels
- heat-damage
- sprout damage
- frost damage
- badly ground-damage
- badly weather-damage
- mold damage
- insect damage (not chewed)
- disease or otherwise materially damaged

Damaged Kernels (Total) is recorded to the nearest tenth of a percent.

Shrunken and Broken Kernels
These are kernels and pieces of kernels of wheat and other matter that will pass readily through a .064 x 3/8 inch oblong hole sieve after the dockage has been removed.

Record to the nearest tenth of a percent.

Defects (Total)
This factor is determined by adding the percentages of Damaged Kernels (Total), Foreign Material, and Shrunken and Broken Kernels.
**Distinctly Low Quality**  
The Federal Grain Inspection Service reserves the use of this term to describe wheat when it is obviously of inferior quality and the existing grading factors or guidelines do not accurately reflect the inferior condition.

When a sampler is collecting wheat from a rail car, he/she can notice whether the grain also includes two or more large stones, pieces of glass, pieces of concrete, sticks of lumber, or scrap metal or debris which are visible to the sampler but are too large to enter the sampling device, such as a grain probe.

This grading factor should not be confused with the other conditions which can also cause wheat to be "Sample Grade," such as animal filth, cockleburs, crotalaria seed, etc.

Record the words Distinctly Low Quality (Reason).

**Musty, Sour or Heating**  
A sample in any of these conditions is "U.S. Sample Grade."

Musty- Musty, ground, or moldy odor

Sour- Sour, fermenting, or pigpen odor

Heating- Wheat developing a high temperature from excessive respiration. Wheat will usually have a musty or sour odor. For this contest, samples that are affected by heating will state "Wheat affected by high temperature" OR "heating."

Record the applicable words in the “Remarks” section of the grading certificate.

**Commercially Objectionable Foreign Odor**  
If the wheat carries an odor which does not normally occur in grain and which, for this reason, would render the wheat unfit for its normal commercial use, then it is graded "U.S. Sample Grade."

This includes animal hides, decaying animal or vegetable parts, fertilizer, skunk, smoke, strong weed, oil, etc. This does not include smutty or garlicky odor.

Record the words "Commercially Objectionable Foreign Odor" in the “Remarks” section of the certificate.
Sample Grade Factors
There is a list of factors that automatically make the sample “Sample Grade” listed on the bottom of the grading chart. These include animal filth, cockleburs, crotalaria seed. If any of these are reported in the sample, participants should grade the sample “Sample Grade” and write the word in the “Remarks” box.

How to record in the “Remarks” box (see chart for details)
- Stones
- Glass
- Crotalaria Seeds
- Castor Beans
- Unknown Foreign Substance
- Toxic Substance
- Cockleburs
- Animal Filth
- Heating
- Distinctly Low Quality (Reason)

Cumulative Total
If a cumulative total of 5 or more sample grade factors (e.g. 3 stones + 1 animal filth + 1 unknown = 5 or more sample grade factors) are found, the sample is graded “U.S. Sample Grade.” Record "Cumulative Total" in the “Remarks” section.

Special Factors, Special Grade Requirements, Special Grade Designations
Special grades are conditions which should be noted but do not affect the numerical grade.

Ergoty
Wheat that contains more than 0.05 percent per 1000 grams ergot is considered Ergoty.

The word "Ergoty" is added to and made part of the grade designation.

Note that ergot also fits the definition of foreign material in wheat and must be included as such.

Garlicky
Specific types of garlic bulbs found in the sample may be considered a special factor.

Green bulbs- husk is still intact, contains three or more green bulblets in 1000 grams

Dry bulbs- husk is dry or missing, 3 dry bulbs= 1 green bulb

The word “Garlicky” is added to and made a part of the grade designation. A garlic odor is not a basis for "Garlicky."
Infested
Any wheat sample that contains one of the following:

- two or more live weevils
- one live weevil and 1 or more other live insects injurious to stored grain
- 2 or more other live insects injurious to stored grain

Infested is the condition of live weevils or grain-damaging insects in the grain.

Infested wheat is graded and designated according to the grade requirements of the standards applicable to such wheat if it was not infested. The word "Infested" is added to and made a part of the grade designation.

Smutty
There are two special grades of smutty wheat -- Light Smutty and Smutty.

- **Light Smutty** - Applies to wheat with a smutty odor, or when wheat contains 6-30 smut balls in 250 grams of grain; the term "Light Smutty" is added to and made part of the grade designation.

- **Smutty** - Applies to wheat that contains 31 or more smut balls per 250 gram sample; the word "Smutty" is added to and made part of the grade designation.

Treated Wheat
Treatments of wheat include:

- scoured
- limed
- washed
- sulphured
4-H/FFA Crops Evaluation CDE
Seeds List (250 points)

Contestant Number: ____________
Score: ____/250

Contestant Name: __________________________________
Contestant School: __________________________________

Directions: Write in the correct number of the plant that correlates to the correct seed example. Each specimen is worth 10 points.

|   |   |   | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. |
|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
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|   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

1. alfalfa
2. alsike clover
3. barley
4. barnyardgrass
5. bindweed
6. birdsfoot trefoil
7. bitter wintercress
8. buckhorn plantain
9. burcucumber
10. Canada thistle
11. canola
12. common cocklebur
13. common lambsquarters
14. common milkweed
15. common ragweed
16. crownvetch
17. curly dock
18. dandelion
19. dent corn
20. downy brome
21. durum wheat
22. eastern black nightshade
23. fall panicum
24. flax
25. field pennycress
26. field pepperweed
27. grain sorghum
28. giant foxtail
29. giant ragweed
30. green foxtail
31. hairy vetch
32. hard red winter wheat
33. horsemettle
34. horseweed
35. jimsonweed
36. johnsongrass
37. Kentucky bluegrass
38. Korean lespedeza
39. large crabgrass
40. morningglory
41. oat
42. orchardgrass
43. oxeye daisy
44. Pennsylvania smartweed
45. Perennial sowthistle
46. popcorn
47. quackgrass
48. red clover
49. redroot pigweed
50. reed canarygrass
51. rice
52. rye
53. ryegrass
54. shepherdspurse
55. smooth bromegrass
56. soft red winter wheat
57. soybean
58. sudangrass
59. sweet corn
60. sweetclover
61. tall fescue
62. timothy
63. triticale
64. trumpet creeper
65. velvet leaf
66. white wheat
67. white clover
68. wild buckwheat
69. wild carrot
70. wild garlic
71. wild mustard
4-H/FFA Crops Evaluation CDE
Plants List (250 points)

Contestant Number: ____________  
Score: ____/250

Contestant Name: ________________________________

Contestant School: ________________________________

**Directions:** Write in the correct number of the plant that correlates to the correct plant mount. Each specimen is worth 10 points.

1. __________ 10. __________ 19. __________
2. __________ 11. __________ 20. __________
3. __________ 12. __________ 21. __________
4. __________ 13. __________ 22. __________
5. __________ 14. __________ 23. __________
6. __________ 15. __________ 24. __________
7. __________ 16. __________ 25. __________
8. __________ 17. __________
9. __________ 18. __________

1. alfalfa  
2. alsike clover  
3. barley  
4. barnyardgrass  
5. birdfoot trefoil  
6. buckhorn plantain  
7. burcucumber  
8. Canada thistle  
9. canola  
10. common cocklebur  
11. common lambsquarters  
12. common ragweed  
13. corn  
14. crownvetch  
15. curly dock  
16. dandelion  
17. downy brome  
18. eastern black nightshade  
19. fall panicum  
20. field bindweed  
21. field pennycress  
22. field pepperweed  
23. garlic mustard  
24. giant foxtail  
25. giant ragweed  
26. grain sorghum  
27. green foxtail  
28. hairy vetch  
29. hedge bindweed  
30. hemp dogbane  
31. horsemint  
32. horseweed  
33. ivyleaf morningglory  
34. Jerusalem artichoke  
35. jimsonweed  
36. johnsongrass  
37. Kentucky bluegrass  
38. Korean lespedeza  
39. large crabgrass  
40. oat  
41. orchardgrass  
42. oxeye daisy  
43. Pennsylvania smartweed  
44. perennial sowthistle  
45. quackgrass  
46. red clover  
47. redroot pigweed  
48. reed canarygrass  
49. rye  
50. ryegrass  
51. shepherdspurse  
52. smooth brome grass  
53. soybean  
54. sudangrass  
55. sweetclover  
56. tall fescue  
57. tall morningglory  
58. timothy  
59. trumpet creeper  
60. velvetleaf  
61. wheat  
62. white clover  
63. wild buckwheat  
64. wild carrot  
65. wild garlic  
66. wild mustard  
67. yellow foxtail  
68. yellow nutsedge
4-H/FFA Crops Evaluation CDE
Disease, Damage, and Insect List (100 points)

Contestant Number: ____________ Score: ____/100

Contestant Name: __________________________________
Contestant School: ________________________________

Directions: Write in the correct number of the plant that correlates to the correct plant mount. Each specimen is worth 10 points.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>6.</td>
</tr>
<tr>
<td>2.</td>
<td>7.</td>
</tr>
<tr>
<td>3.</td>
<td>8.</td>
</tr>
<tr>
<td>4.</td>
<td>9.</td>
</tr>
<tr>
<td>5.</td>
<td>10.</td>
</tr>
</tbody>
</table>

1. armyworm 15. nitrogen deficiency
2. blacktip 16. phosphorus deficiency
3. blue eye mold 17. potassium deficiency
4. brown spot 18. purple seed stain
5. brown stem rot 19. smut
6. common rust 20. sprout damage
7. ergot 21. soybean aphid
8. gray leaf spot 22. sound
9. green damage 23. sudden death syndrome
10. heat damage 24. western corn rootworm
11. insect damage 25. wheat scab
12. Japanese beetle 26. white mold
13. manganese deficiency 27. wireworm
14. northern corn leaf blight
Name ___________________  School ___________________  Contestant Number _________

## Grain Grading Answer Sheet

### Sample 1

<table>
<thead>
<tr>
<th>GRADE AND KIND</th>
<th>U.S. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST WEIGHT PER</td>
<td>MOISTURE</td>
</tr>
<tr>
<td>BUSHEL</td>
<td>lbs</td>
</tr>
</tbody>
</table>

REMARKS

Score _____/25

### Sample 2

<table>
<thead>
<tr>
<th>GRADE AND KIND</th>
<th>U.S. No.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>MOISTURE</td>
</tr>
<tr>
<td>BUSHEL</td>
<td>lbs</td>
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</table>

REMARKS

Score _____/25

### Sample 3

<table>
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<tr>
<th>GRADE AND KIND</th>
<th>U.S. No.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>MOISTURE</td>
</tr>
<tr>
<td>BUSHEL</td>
<td>lbs</td>
</tr>
</tbody>
</table>

REMARKS

Score _____/25

### Sample 4

<table>
<thead>
<tr>
<th>GRADE AND KIND</th>
<th>U.S. No.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>MOISTURE</td>
</tr>
<tr>
<td>BUSHEL</td>
<td>lbs</td>
</tr>
</tbody>
</table>

REMARKS

Score _____/25
<table>
<thead>
<tr>
<th>Sample 5</th>
<th>Score _____/25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 6</td>
<td>Score _____/25</td>
</tr>
<tr>
<td>Sample 7</td>
<td>Score _____/25</td>
</tr>
<tr>
<td>Sample 8</td>
<td>Score _____/25</td>
</tr>
</tbody>
</table>