Egg Quality

4-H Poultry Judging
How Do I Judge Egg Quality?

- Interior Quality
- Exterior Quality
Interior Quality

- Most important when grading eggs
- Determined by candling
- Egg grades are AA, A, B, and Inedible
- It is important to know the parts of an egg
How to Candle an Egg

• Hold the large end of the egg up to the light in a slanted position
• You should be able to see the air cell, yolk, and white
• The air cell is almost always on the large end
• Gently whirl the egg—you may see the yolk move
Air Cell Depth

• In a fresh egg, the air cell is small
• As the egg ages, evaporation takes place and the air cell grows
• The larger the air cell, the lower the grade
Point from which to measure air cell depth

OFFICIAL
EGG AIR CELL GAUGE

AA QUALITY
1/8 inch

A QUALITY
3/16 inch
Yolk

• Yolk of a fresh, high quality egg:
  • Surrounded by a dense (thick) white
  • It does not move around the egg much
  • It is harder to see

• As an egg ages, the white deteriorates in quality causing the yolk to move more freely and be more visible
White or Albumen

- Determined by the yolk’s behavior when candled
- May see blood spots
  - If less than 1/8\textsuperscript{th} of an inch, Grade B
  - If larger than 1/8\textsuperscript{th} of an inch, Grade Inedible
  - Don’t confuse blood spots with the chalaza (string of albumen that helps hold yolk in the center)
<table>
<thead>
<tr>
<th>Quality Factor</th>
<th>AA Quality</th>
<th>A Quality</th>
<th>B Quality</th>
<th>Inedible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Cell</td>
<td>1/8 inch or less in depth</td>
<td>3/16 inch or less in depth</td>
<td>More than 3/16 inch</td>
<td>Doesn’t apply</td>
</tr>
<tr>
<td></td>
<td>Clear Firm</td>
<td>Clear May be reasonably firm</td>
<td>Clear May be weak and watery</td>
<td>Doesn’t apply</td>
</tr>
<tr>
<td>Yolk</td>
<td>Outline slightly defined</td>
<td>Outline may be fairly well-defined</td>
<td>Outline clearly visible</td>
<td>Doesn’t apply</td>
</tr>
<tr>
<td>Spots (Blood or meat)</td>
<td>None</td>
<td>None</td>
<td>Blood or meat spots aggregating not more than 1/8&quot; in diameter</td>
<td>Blood or meat spots aggregating more than 1/8&quot; in diameter</td>
</tr>
</tbody>
</table>
Interior Quality

• The following are NOT to be considered when grading the eggs by candling:
  • Loose, bubbly, or out of position air cell
  • Exterior stains or dirt
  • Faulty egg shape or dirt
Interior Quality

• http://www.youtube.com/watch?v=GTzDrEYRDP4
Exterior Quality

- In commercial egg-producing plants, eggs are graded on both interior AND exterior quality
- For our contest, we judge it separately
- Grades are A, B, and Dirty
- Eggs cannot be handled during the contest
Stains

- Grade A eggs should be clean
- Grade B eggs have slight stains
- Dirty eggs have moderate to excess stains
What’s the Grade?

B  A  B  Dirty  Dirty
Dirt or Foreign Material

- Grade A and B cannot have ANY stuck on dirt or material
- Eggs with dirt larger than a little speck should be graded Dirty
- Small specks of dust or lint that may have settled out of the air should not be considered
Egg Shape

- Grade A have “approximately the usual shape”
- Grade B may be too round or too long to fit in an egg carton
- Grade B eggs are clearly misshapen
Shell Texture

- Eggs with faulty texture are weaker and may be broken
- Mainly refers to calcium deposits
- Eggs with small calcium deposits are Grade A
- Eggs with deposits greater than 1/8th inch are Grade B
- There is no rule as to how many calcium deposits can be on the egg

- Rule of thumb: If you pull your fingernail across the deposit and a good size hole is created, it is Grade B (Use your imagination! No touching!)
Ridges

- Ridges result from weak shells
- Small ridges are still Grade A
- Large ridges are Grade B
- Can also just look like a rough shell
Shell Thickness

- Grade A have no thin spots
- Any thin spots are Grade B
Body Checks

- Condition where the shell looks cracked but is intact
- Occurs during shell formation when the shell is cracked then partially calcified before being laid
- An egg with body check is Grade B
Exterior Quality

- Basically, if the egg looks abnormal or weird, IT IS NOT GRADE A!

<table>
<thead>
<tr>
<th>Factor</th>
<th>AA or A</th>
<th>B</th>
<th>Dirty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhering Dirt or Foreign Material</td>
<td>Approximately the usual shape.</td>
<td>Unusual or decidedly misshapen (very long or distorted).</td>
<td>Adhering dirt or foreign material (1.0 mm in area or greater)</td>
</tr>
<tr>
<td></td>
<td>Clean—may show small specks, stains or cage marks that do not detract from general clean appearance of the egg—may show traces of processing oil.</td>
<td>Slight or moderate localized stains less than 1/32 of shell or scattered stains less than 1/16 of shell.</td>
<td>Prominent stains. Slight or moderate stains covering more than 1/32 if localized and 1/16 of the shell if scattered.</td>
</tr>
<tr>
<td>Shell Texture</td>
<td>May have rough areas and small calcium deposits that do not materially affect shape or strength.</td>
<td>Extremely rough areas that may be faulty in soundness or strength. May have large calcium deposits.</td>
<td></td>
</tr>
<tr>
<td>Ridges</td>
<td>Slight ridges that do not materially affect shape or strength.</td>
<td>May have pronounced ridges.</td>
<td></td>
</tr>
<tr>
<td>Shell Thickness</td>
<td>Free of thin spots.</td>
<td>May show pronounced thin spots.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Absence of body checks.</td>
<td>May show pronounced body checks.</td>
<td></td>
</tr>
</tbody>
</table>
Broken-Out Quality

• What the egg looks like out of the shell
• Grades are AA, A, B, and Inedible
• Judge each egg individually...don’t compare all the eggs in the class; If you set an incorrect standard, you will miss several eggs
Blood Spots

• Eggs with spots larger than $\frac{1}{8}^{th}$ inch are Inedible
• Eggs with spots less than $\frac{1}{8}^{th}$ inch are Grade B
Albumen (White) Thickness

- **AA Quality**
  - Egg content covers a small area.
  - White is firm, has much thick white surrounding the yolk and small amount of thin white.
  - Yolk is round and upstanding.

- **A Quality**
  - Egg content covers a moderate area.
  - White is reasonably firm, has considerable thick white and medium amount of thin white.
  - Yolk is round and upstanding.

- **B Quality**
  - Egg content covers a very wide area.
  - White is weak and watery, has no thick white, large amount of thin white is thinly spread.
  - Yolk is enlarged and flattened.
Broken-out Quality

AA

A

B