Swine Grading
A Guide for 4-H and FFA Members

As in beef, economically important carcass and live traits are considered in swine and are as follows: 1) live weight; 2) dressing percent; 3) fatness; 4) carcass length; 5) muscling; 6) USDA grade; and 7) percent muscle.

**Live Weight** – Market hogs do not vary in live weight as much as beef cattle and can be subjectively estimated with more accuracy.

- Normal Range: 190 – 270 lbs.
- Average: 245 lbs.

**Dressing Percent** – Dressing percent is highest of the three meat animal species. Due to the fact that pigs are only monogastrics. Dressing percent of market hogs with adequate condition should grade choice.

- Normal Range: 68 – 77%
- Average: 72%

**Fat Depth** – Last rib fat depth is measured at the last rib, and is the primary factor in determining carcass grade. Tenth rib fat is measured between the 10th and the 11th and is also used in calculating percent muscle.

**Muscling** – The degree of muscling of a hog is considered when grading market hogs and pork carcasses. Three degrees of pork carcass muscling are recognized in the pork grading standards shown in Figure 18.

- Muscle Score #1 – Thin (Inferior)
- Muscle Score #2 – Average
- Muscle Score #3 – Thick (Superior)

Loin eye area is also another estimate of carcass muscle and I used in the percent muscle equation. Loin eye area is measured between the 10th and 11th ribs on pork carcasses and is highly correlated to carcass muscle.

- Normal Range: 3.5 – 7.0 in²
- Average: 4.8 in²

**USDA Grade** – USDA Grade is determined based on quality indicating characteristics of the lean and expected yield of the four lean cuts (ham, loin, picnic shoulder and Boston butt). The following equation is used to estimate the grade of barrow or gilt carcasses.

\[
\text{USDA Grade} = (4.0 \times \text{Last Rib Backfat Thickness, in.}) - 1.0 \times \text{muscle score}
\]

The muscle scores in this equation are: thin = 1.0; average = 2.0; and thick = 3.0. Exceptions to this equations are that carcasses with thin muscling cannot grade U.S. No. 1 regardless of last rib fat depth (LRFD) and carcasses with 1.75 in. or more of LRFD cannot be graded as U.S. No. 3 regardless of muscling. Figure 16 depicts USDA Grades for Swine.

**Percent Muscle** – A more accurate and precise method of assessing differences in carcass yield of lean red meat. The factors used to predict percent muscle include hot carcass weight (HCW), loin eye area (LEA), and tenth rib fat depth (10RFD). The following is an equation used to estimate pounds of muscle containing 5% fat:

\[
\text{Lb. of muscle containing 5% fat} = 7.231 + (0.437 \times \text{HCW}) + (3.877 + \text{LEA}) - (18.746 \times 10RFT)
\]

Percent muscle can then be calculated as follows:

\[
\% \text{ muscle} = \frac{\text{Pounds of muscle}}{\text{Hot carcass weight}} \times 100
\]
Hog Quality Grades

<table>
<thead>
<tr>
<th>Preliminary Grade</th>
<th>Muscling Scores</th>
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<tbody>
<tr>
<td>U.S. No. 1</td>
<td>Thick</td>
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<tr>
<td>U.S. No. 2</td>
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<tr>
<td>U.S. No. 3</td>
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