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## Procedures to Evaluate Market Pigs

Dan H. Gee

For a number of years there has been a growing demand for a uniform system of market hog evaluation. The pork industry wanted a system where the basic figures from production and carcass information could be combined and results obtained for industry comparison. After 2 years of study by the National Pork Producers Council in cooperation with the American Meat Science Association, a new system of market hog evaluation based on percent or pounds of lean muscle in total carcass weight was initiated. The National Pork Producers Council hopes the system will meet the demands of the pork industry for a uniform evaluation system.

Percent of muscle in total carcass weight replaces percent of ham and loin as the standard. The percent of muscle figure along with age is used to determine the number of days pigs require to produce 85 lb. of lean. Age required to produce 85 lb. of lean serves as an arbitrary base to compare pigs. A 156 lb. carcass that has 4.4 sq. in. of loin eye area and 0.8 in. fat at the tenth rib will yield about 85 lb. of muscle or 54.5% of carcass weight in lean muscle.

To find percent or pounds of muscle, three measurements are used: hot carcass weight (lb.), loin eye area (sq. in.) and fat depth (in.) at the tenth rib. The tenth rib fat measurement replaces the average backfat measurement which was the average of measurements at the first rib, last rib and last lumbar vertebrae.

The guidelines that have been developed are an attempt to identify market pigs that excel in production efficiency and carcass desirability. The following guidelines as established by the National Pork Producers Council include methods for combining production records, live visual appraisal and carcass characteristics.

### Recommended Procedures to Evaluate Market Pigs

Step 1 -- The pig should first meet the following MINIMUM STANDARDS:

- A. Production information--provided by the producer.
  1. Birth date. When desired by the management, each producer should provide an age certificate which has been verified by a representative designated by the management.
  2. Minimum litter size of eight pigs if first litter and nine if produced by a sow.
  3. Minimum litter weight at 21 days of age of 95 lb. if first litter and 110 lb. if produced by a sow.
  4. When available a maximum of 3 lb. feed required per live lb. of gain from 60 lb. to slaughter.

- B. Live Visual Observations--established by one or more experienced and knowledgeable evaluators.
1. Free from obvious infections, injuries, hernias and blindness.
  2. Minimum score of 2 in structural soundness of feet and legs (1 = structurally unsound, 2 = slight structural abnormality, 3 = sound).
  3. Should not be a late castrate.
  4. Free of symptoms related to porcine stress syndrome.
- C. Carcass Traits--established by one or more experienced and knowledgeable evaluators.
1. Free of arthritis, abscesses and other obvious diseases and abnormalities.
  2. Free of cryptorchidism.
  3. Minimum carcass length of 29.5 inches.
  4. Minimum adjusted hot carcass weight of 140 lb.
  5. Maximum trim loss of 3% of carcass weight.
  6. Muscle color score should range from 2 to 4 (1 = pale, 2 = slightly pale, 3 = normal, 4 = slightly dark, 5 = dark).
  7. Muscle marbling score should range from 2 to 4 (1 = traces, 2 = slight, 3 = small, 4 = moderate, 5 = abundant).
  8. Muscle should be firm and free of excess surface juices.
  9. Should meet the following breed certification standards:  
Carcasses should meet minimum carcass certification standards established by the breed associations. For interbreed competitions including crossbreds, the standards should be those established by the National Association of Swine Records. The following certification standards are based on 220 lb. live weights. Adjustments should be made for pigs not weighing 220 pounds.

<u>Breed</u>	<u>Carcass length (inches)</u>	<u>Average backfat skin-on, (inches)</u>	<u>Loin eye area (10th rib, sq. in.)</u>	<u>Days to 220 pounds</u>
Hampshire	29.5	1.5	4.50	175
Spotted swine	29.5	1.5	4.75	180
All other breeds and crossbreds	29.5	1.5	4.50	180

Step 2 -- If the pig meets the standards established in Step 1, then it is ranked according to the following procedure:

- A. Determine age of pig in days.
- B. Determine total pounds of muscle in carcass by using the following formula (to determine percent muscle, divide pounds of muscle by hot carcass weight):

$$\text{Pounds of muscle} = 2.0 + (\text{hot carcass weight, lb.}, \times 0.45) + (\text{loin eye area, sq. in.}, \times 5.0) - (\text{10th rib fat, in.}, \times 11.0)$$

- C. Determine the number of age units required to produce 85 lb. of muscle. Use the following formula:

$$\begin{array}{l} \text{AGE UNITS REQUIRED TO} \\ \text{PRODUCE 85 POUNDS OF} \\ \text{MUSCLE} \end{array} = \left[ \frac{(85 \times \text{age at slaughter}) - 5100}{\text{Pounds of muscle}} \right] + 60$$

- D. Except under special circumstances (i.e., poor underlines), it is not recommended to exhibit market gilts. However, if permitted by the management, the age units required to produce 85 lb. of muscle should be adjusted by subtracting two units for gilts.
- E. Rank pigs on the basis of adjusted number of age units required to produce 85 lb. of muscle. The pig requiring the fewest number of units would rank first.

A barrow, 160 days of age, that met all minimum standards and produced a 160 lb. carcass with 5.0 sq. in. of loin eye area and a fat depth of 1.0 in. would, according to the formula in Step 2-B, yield 88 lb. of muscle. The final step would be to determine age units required to produce 85 lb. of muscle. According to the formula in Step 2-C, the barrow would require 157 days or age units to produce 85 lb. of lean.

Local circumstances will often not permit attainment of all the information covered in this evaluation format. If the available information is put in standard form, it would provide a degree of standardization for the industry. It is hoped that these guidelines can be used in part or in total by anyone in the industry at any location to make comparisons of animals, test station pigs, etc. It should also improve the efficiency of administering contests, especially in the collection and interpretation of carcass data.