

## IDEA

Sourcing High Quality Pork:  
The Retailers Guide

Initiative for the Development of Entrepreneurs in Agriculture

Daniel Jennings  
Richard Knipe  
Gina Backes

There are many factors on the farm, in transport, and in the processing plant that affect the eating quality of pork. This discussion outlines the primary attributes for measuring pork quality and presents information on how pre-harvest management influences the quality of pork in your meat counter. Working directly with the pork producer, allows the retailer to create a set of pork specifications that best suit their customers' needs.

**Indicators of Fresh Pork Quality:**

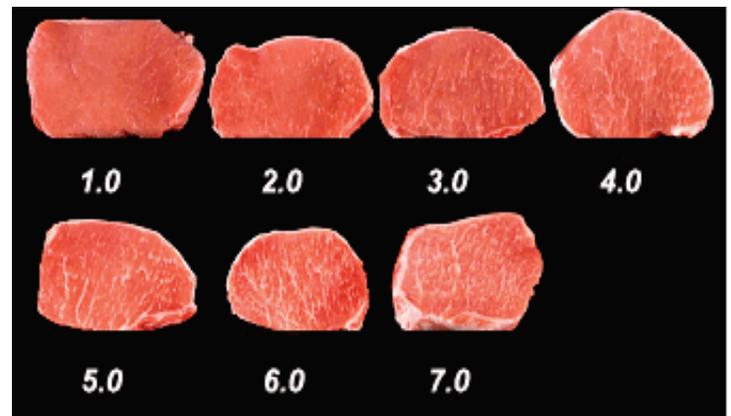
- 1) Palatability - palatability may best be defined as the combination of tenderness, flavor, and juiciness. If any one of these characteristics is lacking, palatability and subsequent eating experience will diminish.
- 2) Tenderness - tenderness is defined as the biting force required to cut through the meat. This can be measured objectively using an



Instron machine, which measures the shear force to cut the cooked product. In the near future individual producers will ascertain this information on their farms for the purpose of certifying guaranteed tenderness.

- 3) Flavor – Distinct pork taste is highly influenced by the degree of marbling and feedstuffs in the ration. A suggested threshold level of 2.5 – 3% of marbling is recommended for optimum eating experience. This can be controlled in a population of pigs by utilizing an ideal source of genetics, feed, and constant harvest weights.

Objective Measurement: Degree of Marbling:  
The picture below shows the standards by which marbling are visually evaluated. The number shown represents the percentage of marbling for that particular cut, for example the first cut contains 1% marbling. Ideal marbling is 3 – 4%.



- 4) Juiciness – the amount of moisture retained in the meat after it has been cooked. Juiciness of fresh pork is determined by the pig's genetics. Juiciness is negated by excessive purge or decreased water-holding capacity.

**Purge** - the juice exuded from fresh meat cuts after they are packaged and which remain in the package at the time of opening.

**Firmness** – pork’s propensity to hold its shape. This is another indicator of water holding capacity.

**Objective Measurement: pH** This measurement of the acidity of the loin muscle is taken 24 hours after slaughter using a pH meter (below) Higher pH is associated with low drip loss, darker color, more firmness, and increased tenderness of the loin chop—all positive attributes.

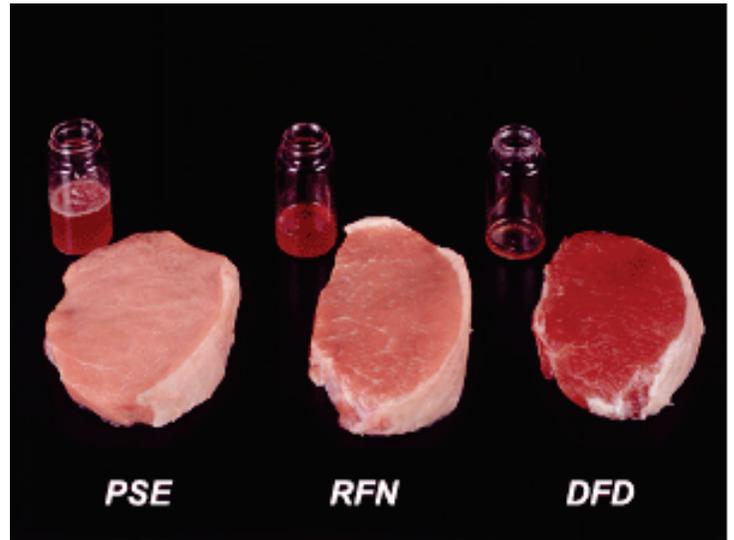


5) **Color**- The importance of color is reflected by consumer preference and juiciness. Fresh pork color ranges from white to dark red. However, reddish pink is considered superior due to its optimum moisture content.

Color: Color is objectively measured using the Minolota Meter, which measures the light reflectance. Optimum color scores range from 40 – 50.

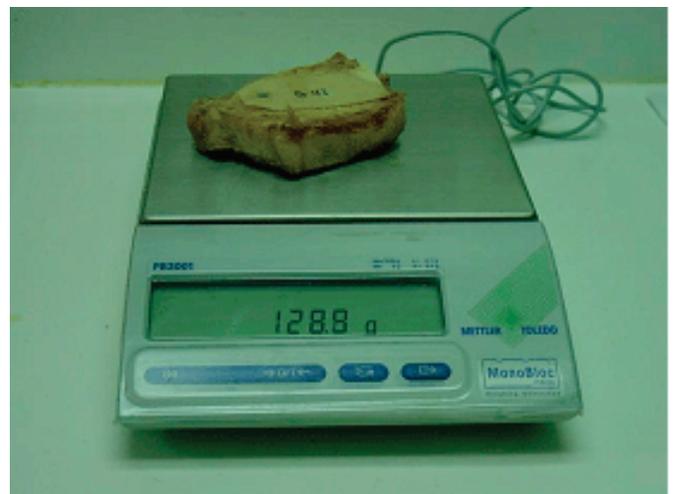


This picture illustrates the correlation between color and drip loss, with the middle, reddish pink chop being ideal.



6) **Cooking Loss** – Optimum-cooking loss should range from 18-24% for center loin cuts. Significantly lower cooking loss is an indicator of insufficient marbling.

**Food Safety:** High quality and pathogen-free pork is a function of cleanliness at all levels of the chain including the farm. By making more direct links with the farmer, the retailer can guarantee a fresher pork product. In addition, the retailer can ensure wholesomeness if the specific farm has documented management practices such as level 3 certification for the Pork Quality Assurance program.



### ***On-Farm Practices that Impact the Eating Qualities of Pork:***

1) **Genetics**- choice of breeds can greatly affect the eating quality of pork. Recent research indicates that the Duroc and Berkshire breeds have a greater genetic propensity to produce pork with enhanced



eating qualities. These breeds produce pork with a higher degree of marbling and a more desirable pH, which adds flavor and juiciness respectively. These breeds can impact pork

quality much like the Black Angus breed has impacted beef quality.

2) **Feedstuffs & Additives** - The primary ingredients in swine diets are corn and soybean meal. To guarantee a consistently high quality meat product, feed ingredients must also be consistently high quality. The type of primary ingredients has been show to influence meat flavor.

#### ***Feed Additives:***

Feeding *magnesium* five days prior to harvest reduces the effects of transportation and pre-harvest stress, which results in a reduction in drip loss, improvement in



color and lowers the incidence of Pale, Soft, and Watery (Exudative) (PSE) pork.

**Vitamin C:** is an enzyme inhibitor that improves pork's color, resulting in a more appealing product at the meat counter. Although pork is known as "the other white meat", consumers resist the very pale colored pork. In addition, feeding Vitamin C the day prior to harvest results in a 13% improvement in water holding capacity.

**Vitamin E:** A major cause of deterioration in the quality of meat during storage is lipid oxidation, which can result in a number of undesirable changes that reduce the shelf life of pork. Vitamin E acts as an anti-oxidant, and when added to the diet results in extended shelf life.

#### **Consistency:**

Delivering consistent pork quality is a major challenge for the traditional pork supply chain. Farmers that utilize genetics, feeds, and management regimes that enhance the eating quality of pork are valuable resources for retailers to partner with to procure uniform, high quality pork. Pork producers can document the level of pork quality on their specific farm by utilizing the University of Illinois Extension Pork Quality Audit.



### **What is Organic Pork?**

This includes products from hogs that have been raised--and meat products that have been processed--and handled in compliance with the USDA's Organic Standards. These standards involve the entire processes in which synthetic inputs in all phases in animal production and meat processing are prohibited.

### **What is Natural Pork?**

These products have been processed in compliance with the USDA's natural standards. These standards prohibit the use of artificial ingredients, coloring or chemicals and require minimal meat processing.

**For more information  
contact  
Richard Knipe  
Phone: 309-792-2500  
Email: [rknipe@uiuc.edu](mailto:rknipe@uiuc.edu)**

