

The Piedmontese Tenderness Gene (Myostatin C313Y) AGES WELL ...

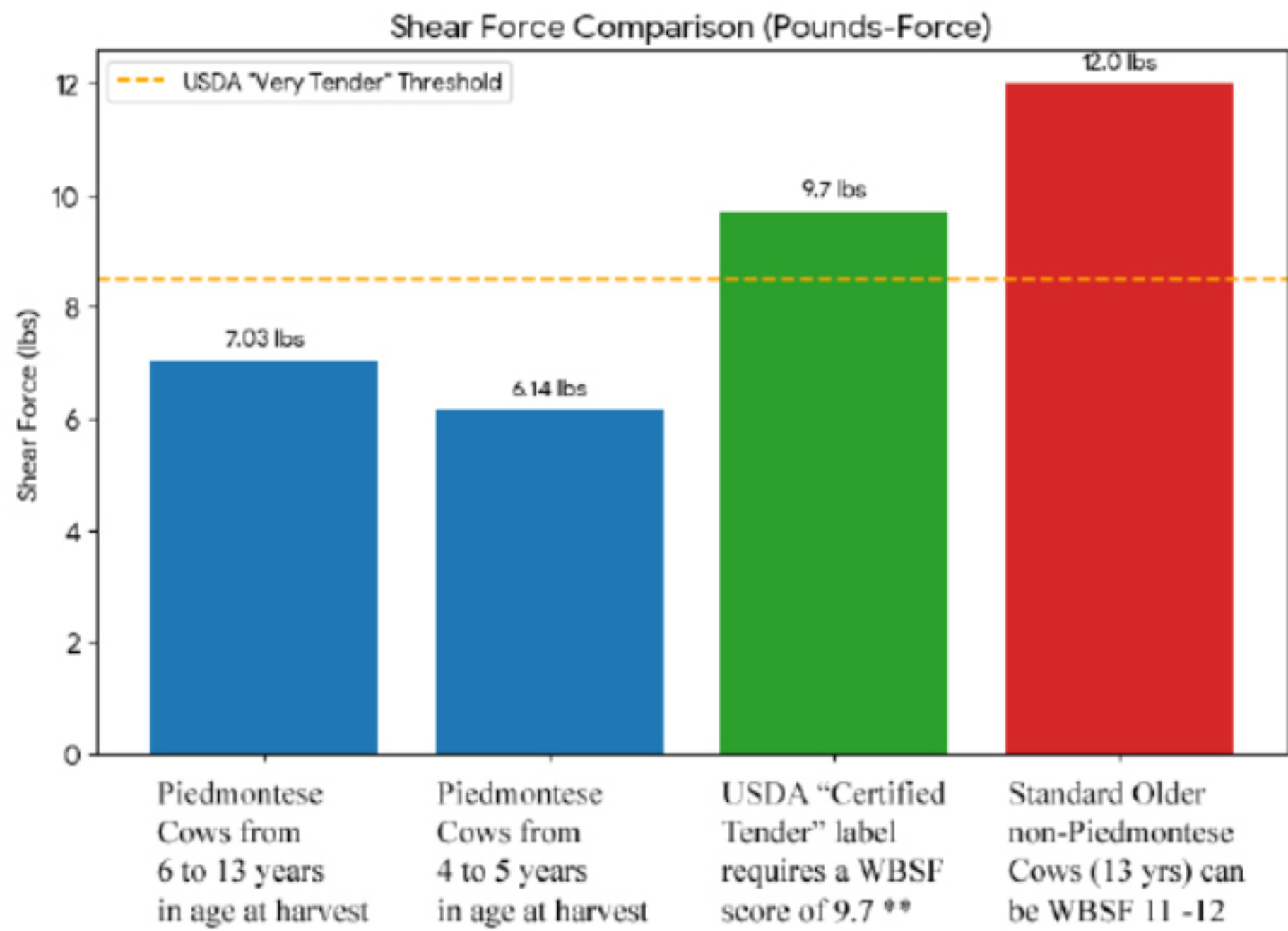
In the context of the Brugiapaglia et al. study, these scores are highly impressive because they come from older animals (4–13 years). Usually, meat from older cows is significantly tougher, yet these Piedmontese females produced meat that competes with high-quality youthful commercial beef.

Here is how those specific WBSF scores 7.03 lbs and 6.14 lbs compare to standard industry benchmarks and commercial categories.

Industry Tenderness Thresholds:

The meat industry uses specific “Minimum Tenderness Threshold Values” (MTTV) to certify beef as “Tender” or “Very Tender.”

- * USDA “Certified Very Tender”: Requires a WBSF score of 8.5 lbs
- * USDA “Certified Tender”: Requires a WBSF score of 9.7 lbs



USDA "Certified Tender": Requires a WBSF score of 9.7 pounds;
USDA "Certified **Very** Tender": Requires a WBSF score of 8.5 pounds indicated by the yellow dashed line in the chart.

Comparison to Grain-Fed Beef: Typical [USDA Choice] or Select New York strip steaks from young steers (under 30 months) often average around 9.0 - 11.0 lbs of shear force. These older Piedmontese cows are actually more tender than many younger, commercial beef cuts. ----- [North American Piedmontese Association \(NAPA\)](#) [piedmontese.org](#)

In the Brugiapaglia et al. study on beef tenderness for older Piedmontese culled cows, WBSF scores are reported in Newtons (N), not kilograms or pounds - and the notation PF means “Peak Force”.

The Warner-Bratzler Shear Force (WBSF) test is the industry-standard, objective method for measuring beef tenderness, quantifying the physical force required to cut through a meat sample. It measures tenderness in lbf (pounds of force), kgf (kilograms of force) or Newtons (N), where lower values indicate more tender meat, directly correlating to consumer perception of ease-of-chewing.

To convert Warner-Bratzler Shear Force (WBSF) from metric units (typically kilograms or Newtons) to pounds, use the following conversion factors:

Conversion Formulas

- From Kilograms (kg) to Pounds (lb):
Multiply the value in kilograms by 2.2046.
o Example: 3.2 kg X 2.2046 = 7.0 lbs
- From Newtons (N) to Pounds (lb):
Multiply the value in Newtons by 0.2248.
o Example: 41.40 N x 0.2248 = 9.3 lbs

Link to the original Research document:
[/wp-content/uploads/pdf-uploads/2026/03/Texture_of_Piemontese_Beef_Culled_Cows_A-1-1.pdf](#)

Technical Report: Tenderness Excellence in Aged Piedmontese Females

Analysis of Research by Brugiapaglia, Destefanis, and Pattono (University of Turin)

1. Understanding the Data: Converting Metric to Imperial

In the study “Texture of Piemontese Beef Culled Cows Aged 4-13 Years,” tenderness is measured using Warner-Bratzler Shear Force (WBSF). While the study uses Newtons (N), the North American industry standard is Pounds (lbs).

Below are the conversions for the key “Peak Force” milestones found in the research:

Metric Value (Newtons)	Imperial Value (Lbs-Force)	USDA Tenderness Category
27.32 N	6.14 lbs	Very Tender (Exceptional)
31.29 N	7.03 lbs	Tender (High Quality)
43.10 N	9.70 lbs	Industry Maximum for “Tender”

2. The “Piedmontese Exception”

Normally, beef from cows aged 4–13 years is considered “utility” or “tough,” often exceeding 10–12 lbs of shear force. However, this study confirms that Piedmontese genetics (the myostatin gene) defy the standard rules of aging:

- Superior Quality at Advanced Age: Even at 13 years old, these females produced meat that scores between 6.1 and 7.0 lbs.
- Comparison: These scores are actually more tender than many young, grain-fed commercial steers (Choice/Select) found in grocery stores, which often average 9.0+ lbs.

3. The Impact of Aging

The research highlights that while the meat is naturally tender, specific aging periods optimize the eating experience:

- The 9-Day Sweet Spot: The most significant drop in toughness occurred by day 9, where shear force values dropped by approximately 24%.
- Day 15 Results: By day 15, the samples reached the 6.14 lbs (27.32 N) mark. This level is associated with 100% consumer satisfaction, meaning every person in a blind taste test would likely categorize this meat as “tender.”

Summary for Producers

This data provides powerful marketing evidence for the North American Piedmontese industry. It proves that the “cull cow”—often a low-value asset—actually produces a premium, gourmet-quality protein that rivals or beats the tenderness of younger “prime” animals of other breeds.



It is important to note that the research reported here was conducted on Fullblood Piedmontese females in Italy. As you can see from the inset pictures, these females also will produce considerable carcass YIELD.

Join us on August 28 - 30, 2026 in Moscow, ID with Dr. Phil Bass to conduct WBSF testing on various younger Piedmontese & crosses. Contact Stacy at NAPA via email to NAPA.piedmontese@gmail.com for details.