Adding Value to the Cow-Calf Sector with Local Beef Sales

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Happy Valentine's Day - Beef is good to your HEART

US System to Ensure Beef Quality

– Improved genetics

– Grain feeding

– Marbling

– Age of animal

– Post-harvest management

Why local?

- Consumer desires to know food origins
- Trust in ranchers/farmers
- COVID
  - Exposed fragility of US food system
  - Processing bottlenecks
- BIG is bad
- Availability
  - Expansion of small processors

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Local freezer beef – Economic Considerations

	Weight, #	Price, $/#	Value, $	Added, $
Feeder calf	550	2.80	1540	
Slaughter steer	1200	1.79	2148	608
Industry Carcass	750	2.94	2205	665
"Local" Carcass	750	6.00	4500	2960
"Local" Added Costs				
Feed (180 days)	2.0T	360/T	720	
Forage (180 days)	0.9T	160/T	144	
Slaughter fee			100	
Cut and Pack	750	0.80	600	
Total Added Cost			1564	2936

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Local Freezer beef –
How much meat do I get?

- 1200 lb steer will dress 62.5% = 750 lb HCW

- 750 lb HCW will cut 70% into retail = 525 lb
  - 20-25% ground beef (130 lb)
  - 20-25% typical steaks (130 lb)

- About 44% yield from live weight

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Freezer size

- A quarter of a 1200 lb steer (130ish lb).

- For a whole fed steer, 500-550 lb of meat, it will take all of a big 19 cubic foot chest freezer

Local Freezer beef –
How do you plan to sell it?

- On-farm slaughter by purchaser on farmer's land
  - Up to the producer- probably send them with offal
- If you plan to sell meat piece-by-piece
  - The animal must be initially slaughtered under USDA FSIS inspection
- If you pre-sell the meat from animals prior to slaughter
  - This can be facilitated without USDA FSIS inspection (Custom Exemption)

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https://edis.ifas.ufl.edu/publication/AN316

How Do I Legally Sell Meat from My Own Livestock and Poultry in Florida?[1]

Chad Carr, Jason Scheffler, Larry Eubanks, Elena Toro, Ron Webb, Lee Cornman, Scotland Talley, and Steve Stiegler[2]

There is much interest in locally produced foods, but the federal, state, and local regulations can be confusing. The purpose of this document is to be a "one-stop-shop" for Florida residents who want to sell meat and poultry from their own livestock and poultry.

What species are eligible to be sold?

If you raise cattle, hogs, sheep, goats, or equine, these species are defined by the US Department of Agriculture's Food Safety Inspection Service (USDA-FSIS) as being "amenable livestock species," meaning that the US government is accountable for the products from those species (21 U.S.C. § 601–695; http://www.fsis.usda.gov/wps/wcm/connect/fsis-content/internet/main/topics/rulemaking/federal-meat-inspection-act/federal-meat-inspection-act)

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Local Freezer beef – By-the-piece or By-the-animal?

- **FSIS Inspected vs Custom Exempt**
  - FSIS inspected
    - Identify FSIS-inspected plant
    - Can sell by the piece
    - Need FSIS-approved label
    - Inventory management needed
    - Accumulation of end cuts/trim

How do I sell this inspected beef from our farm/butcher shop?

- Retail Exempt

    1. at least one employee who has been trained as a food manager

    2. to meet minimum construction and sanitation standards

    3. to meet potable water and waste management standards

    4. a proper food permit, depending on type of retail establishment

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USDA Custom Exempt Slaughter

- Only for personal use by the animal's owner
- Sell live animal ($4500/1200# = $3.75/#)
- Product must be marked "Not for Sale."
- Carcass, side, or quarter
  - < 30 freezer beef annually
- Less restrictive on claims
- Annual evaluation by USDA-FSIS

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Local Freezer beef – Additional Considerations

- **Source**
  - **open heifers / outs**
  - **age and weight**
- Claims
  - all natural
  - no hormones added
  - no antibiotics

- Genetics / Breed
- Grain-fed vs Grass-fed
- Typically not Graded
- Postmortem Aging
  - 14 – 21 days
  - wet vs dry

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Most important impact of Age of Animal? Connective Tissue

- **Connective Tissue is Found:**
  - around the muscle (connects muscle to bone or other muscles),
  - around muscle bundles
  - around muscle fibers
    - Some is soluble; some insoluble
    - Older an animal gets, less soluble the CT

epimysium

endomysium

perimysium

sarcolemma

sarcomere

myofilament

muscle fiber

myofibril

muscle bundle

MUSCLE
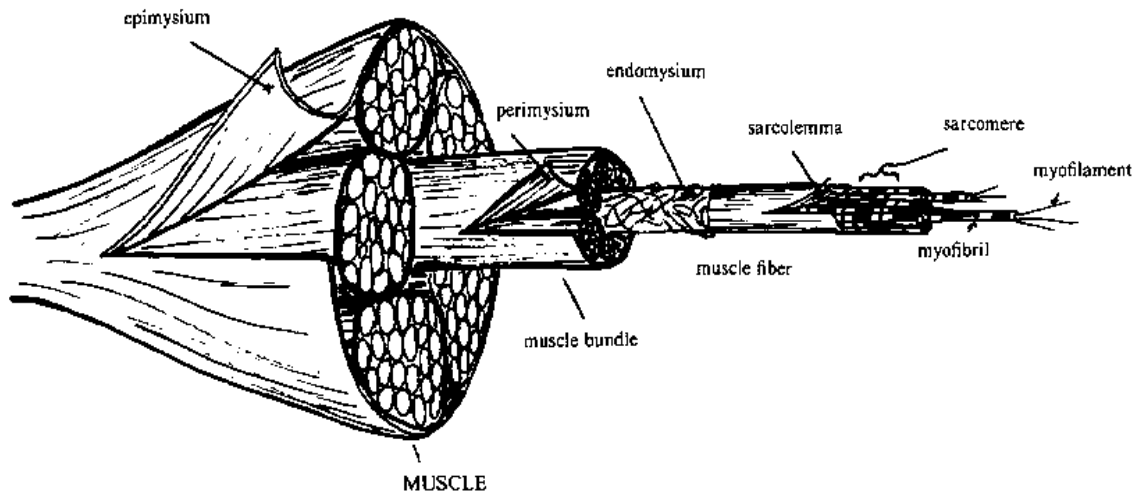
Tenderness: Carcass Physiological Age/Maturity

| Odds of "Undesirable" Eating Experience		
Maturity Group	**Flavor**	**Tenderness**
A (9-30 mo.)	1 in 8	1 in 8
B (30-42 mo.)	1 in 4	1 in 4

Source: Smith et al., 1982

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Label Claims
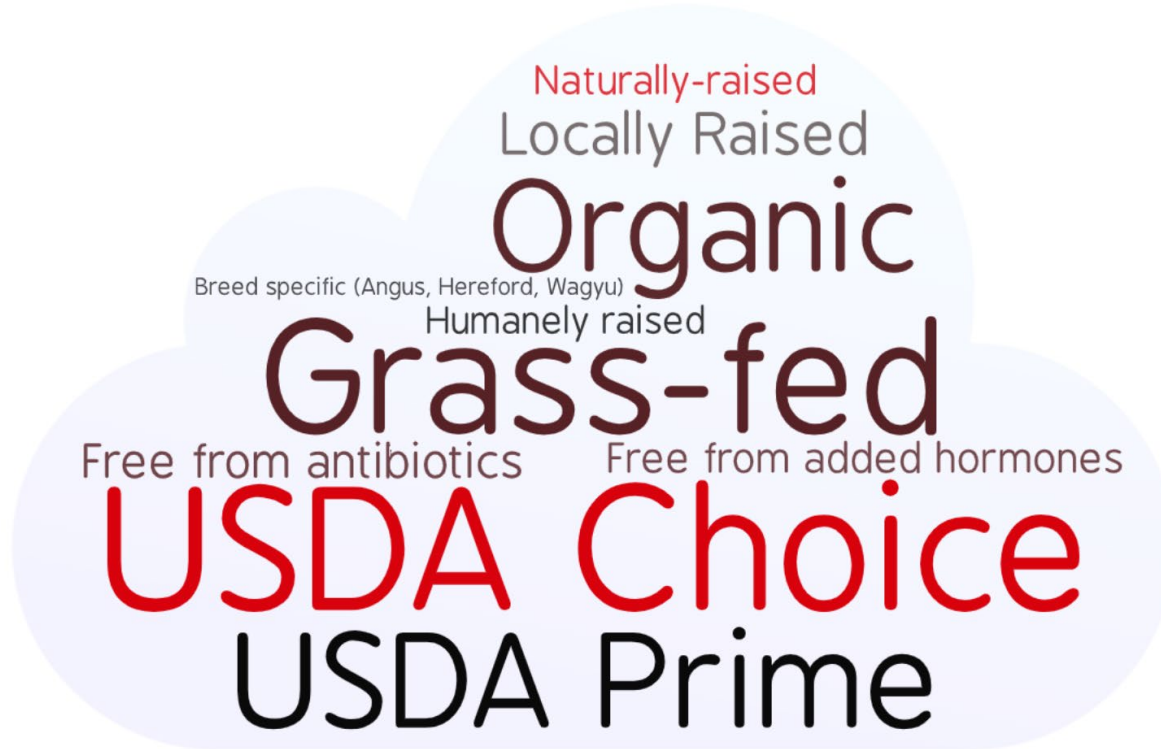
BEEF RESEARCH

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Genetics

TABLE 1.

Comparison of carcass quality and beef tenderness characteristics for eight of the most widely used cattle breeds in U.S. production systems

Breed	Type	Age-constant means[a]		
		Marbling score	% Choice & higher	Shear force, kg
Angus	*Bos taurus*/British	SM^{88}	88	4.0
Hereford	*Bos taurus*/British	SM^{26}	65	4.1
Red Angus	*Bos taurus*/British	SM^{90}	90	4.1
Charolais	*Bos taurus*/Continental	SM^{17}	62	4.3
Gelbvieh	*Bos taurus*/Continental	SM^{06}	58	4.5
Limousin	*Bos taurus*/Continental	SM^{04}	57	4.3
Simmental	*Bos taurus*/Continental	SM^{27}	66	4.3
Brahman	*Bos indicus*/Zebu	SL^{73}	30	5.9

[a]*Source: Wheeler et al., 2001, 2005. SM = Small, SL = Slight. Lower shear force values are indicative of greater tenderness*
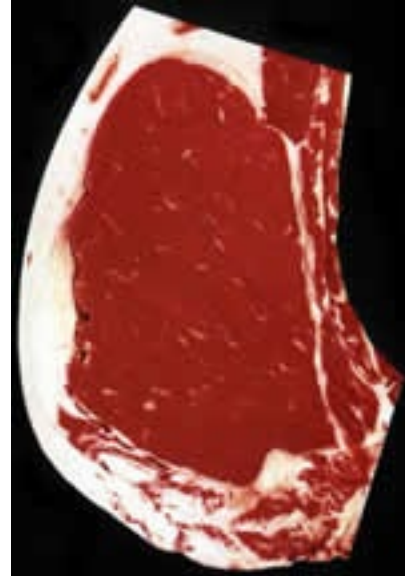
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Grain-Fed

Grass-Fed

Grain-Fed vs. Grass-Fed

- **Grass-fed is:**
  - **Leaner externally, internally, and within the muscle**
  - **Lighter weight, lighter muscled, lower dressing percentage**
  - **More "off-flavors" & tends to be tougher & less juicy**
  - **Has higher percentage saturated, and PUFA**

Than Grain-fed

(Bowling et al., 1977; Hedrick et al., 1983; Schaake et al., 1993)
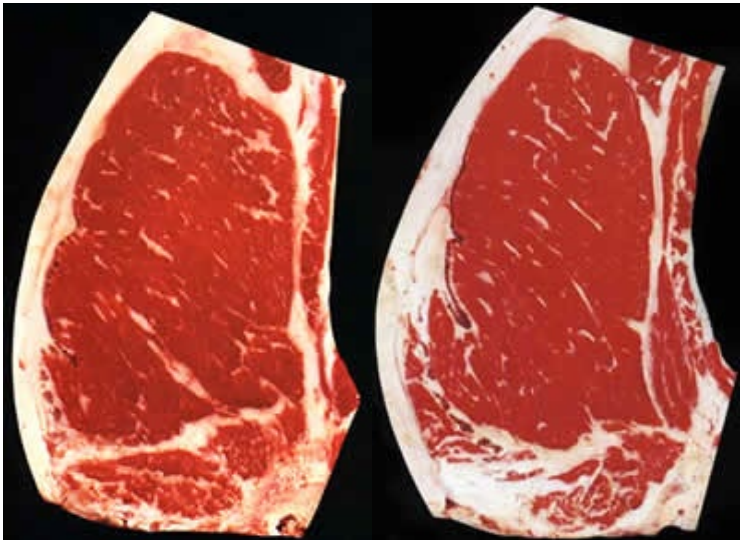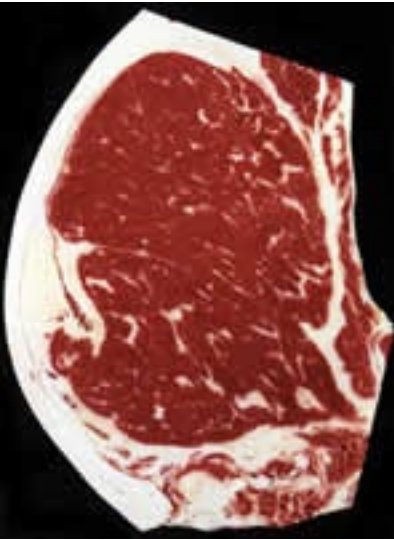
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But USDA Grades Can go Further!

Abundant   **Moderate**   **Modest**

Small

Abundant	Moderate and Modest	Small
Upper Prime	*Medium and Top Choice Minimums*	*Low Choice minimum*
<1% of all Grades	*35% of Choice grade*	*65% of Choice grade*
American Kobe, Wagyu	*Certified Angus Beef, Sterling Silver, Chairmen's Reserve*	*USDA Choice = Low Choice!*
		Certified Hereford Beef, Other Angus

U.S. PORK

Tenderness: Striploin Steaks by Quality Grade
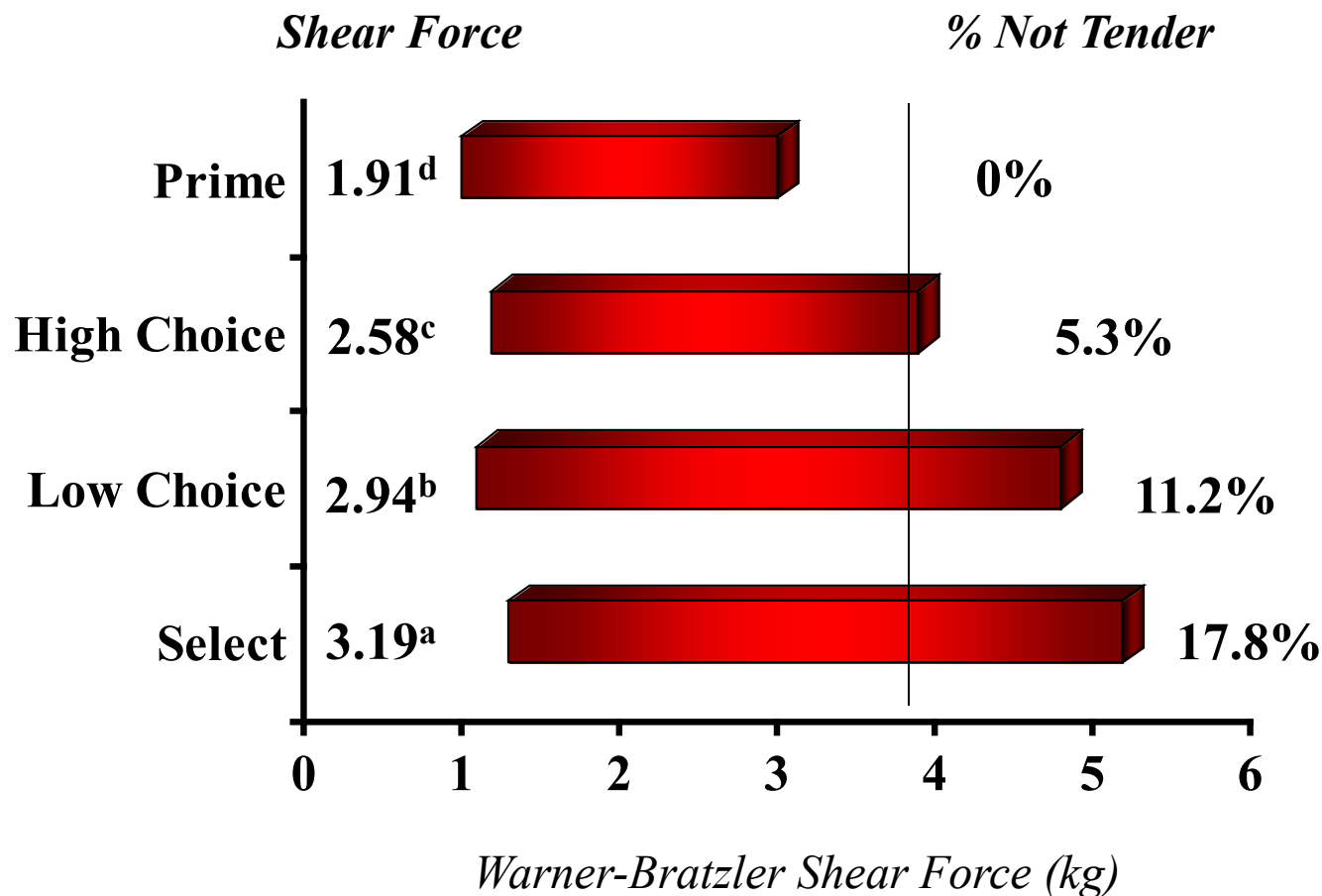
Shear Force   **% Not Tender**

Prime | 1.91[d]   0%

High Choice | 2.58[c]   5.3%

Low Choice | 2.94[b]   11.2%

Select | 3.19[a]   17.8%

0   1   2   3   4   5   6

Warner-Bratzler Shear Force (kg)

Source: George et al., 1997

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Improvement of Beef Tenderness with Increased Time of Aging
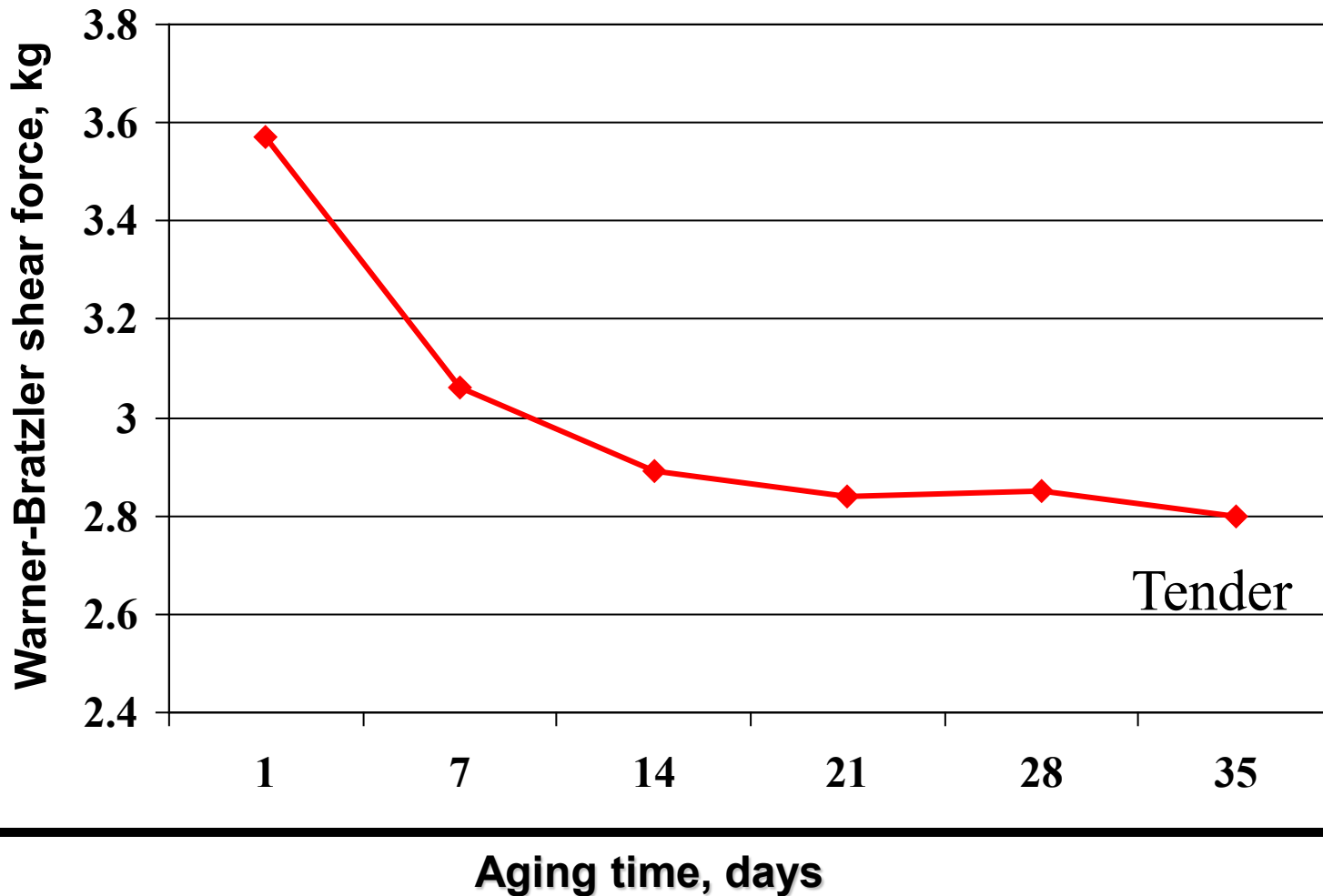
Dry vs. Wet Aging

Wet aging in vacuum packaged bag

Dry aging on rack in open air

Before and after of Dry aging

Wet vs. Dry Aging
Yield Loss (25%+)
Taste:
Intense Beefy, Nutty, Earthy
Cost!

Comments and Questions?