



# MARKETING MEAT

*direct to consumers*

Volume 2: The Processing  
Process

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# Focus of Today's Discussion

- Selection of a Processor
- Meat Aging (Dry vs. Wet)
- Meat Processing Yields





# MEAT PROCESSING is an ART

- A trade that has renewed INTEREST
- Can be an EXPENSIVE industry to tackle
- We need MORE passion for owning and operating small to very small facilities
- Difference between PROCESSOR and a BUTCHER



# PROCESSOR SELECTION

- Questions to consider when identifying a Processor
  1. Form of Meat Inspection conducted at Facility
  2. Processing Fees
  3. Distance from Farm to Processor
  4. Available dates for processing
    - a) 10 Days
    - b) 30 Days
    - c) 60 Days
    - d) 90 Days
  5. Familiar with unique cuts





# FORMS of MEAT INSPECTION

- Facilities will follow the Code of Federal Regulations
  - Title 9: Animals and Animal Products
  - Hazzard Analysis Critical Control Points
  - Good Manufacturing Procedures
  - Standard Operating Procedures
- USDA Federal Plant
  - Products can be transported/marketed across STATE boundaries
- State Inspected Plant
  - Products can be transported/marketed within STATE boundaries
- Custom Exempt
  - Products are RESTRICTED to customer only
  - Often designated NOT-FOR-SALE

CODE OF FEDERAL  
REGULATIONS

9

Parts 200 to End  
Revised as of January 1, 2019

Animals and  
Animal Products

- Packaging Methods Available

- 





# PROCESSING FEES

- Demand for CUSTOM meat processing will influence processing fees
- **Slaughter Fees**
  - \$50 to \$75 per animal
  - \$5.00 disposal
- **Cutting and Packaging or Wrapping Fee**
  - \$0.60 to \$0.95/pound of Hot Carcass Weight
  - \$5.00 to \$10.00 Tenderizing/Cutlets
  - \$0.50 to \$1.25 Patty forming
  - \$0.25 to \$1.00 Stew cutting
  - \$5.00 to \$10.00 Boneless
  - \$5.00 Netting/Roast Tying
  - \$0.25 to \$0.75/pound Chili Grind
  - \$1.00 to \$2.00/day Additional Aging

- **Additional Charges**

- Vacuum Packaged vs. Butcher Paper
- Inventory of Cuts and Boxing
- Custom Label Creation \$150
- Individual Packaged Weights \$0.10 to \$0.25/pound
- Split Orders (Quarters, Thirds, Halves) \$40 to \$20 per carcass
- Photos, Quality and Yield Grading \$20 to \$40 per carcass



# SCHEDULING A PROCESSING DATE

- AVAILABILITY is **ALWAYS** limiting
  - Hours of Processing/Production
  - Number of Employees
  - Refrigerated and Frozen Storage Space
  - Does the processor close for BIG GAME periods?
  - Popularity of processor
- Current Processing Schedules Nationwide
  - September 2020
  - January 2021
  - April 2021
  - August 2021





# PATIENCE and COMMUNICATION

- Processing of animals for Food is a DIFFICULT business
- Labor Shortages
- Limitations on Refrigerated Storage
- Variation in CUTTING instructions from customer to customer
- Comfort in creating SPECIALTY cuts
  - Vegas Steak      Tri-Tip      Asian BBQ Ribs
  - Flat Iron Steak      Mock Tender Steaks

**BEEF CUTS AND RECOMMENDED COOKING METHODS**

CHUCK		RIB	LOIN	SIRLOIN	ROUND	INGREDIENT CUTS
Arm Chuck Roast	Cross Rib Chuck Roast	Ribeye Roast, Bone-In	Porterhouse Steak	Top Sirloin Steak	Top Round Roast*	Kabobs*
Arm Chuck Steak	Shoulder Roast	Ribeye Steak, Bone-In	T-Bone Steak	Top Sirloin Petite Roast	Top Round Steak*	Stew Meat
Blade Chuck Roast	Shoulder Steak*	Back Ribs	Strip Steak, Bone-In	Top Sirloin Fillet	Bottom Round Roast	Strips
Blade Chuck Steak*	Ranch Steak	Ribeye Roast, Boneless	Strip Steak, Boneless	Coulotte Roast	Bottom Round Steak*	Cubed Steak
7-Bone Chuck Roast	Flat Iron Steak	Ribeye Steak, Boneless	Strip Petite Roast	Coulotte Steak	Bottom Round Rump Roast	Ground Beef and Ground Beef Patties
Chuck Center Roast	Top Blade Steak	Ribeye Cap Steak	Strip Filet	Tri-Tip Roast	Eye of Round Roast	Shank Cross-Cut
Denver Steak	Shoulder Petite Tender	Ribeye Petite Roast	Tenderloin Roast	Tri-Tip Steak	Eye of Round	
Chuck Eye Roast	Shoulder Petite Tender Medallions	Ribeye Filet	Tenderloin Steak (Filet Mignon)	Petite Sirloin Steak		
Chuck Eye Steak	Short Ribs, Bone-In			Sirloin Bavette Steak	Brisket Flat	Skirt Steak*
Country-Style Ribs					Brisket Point	Flank Steak*
						Short Ribs, Bone-In*

**KEY TO RECOMMENDED COOKING METHODS**

Find recipes for these cuts at [CHUCK.KNOWSBEEF.COM](http://CHUCK.KNOWSBEEF.COM)

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# MEAT and CARCASS AGING

- Depends upon available storage of processor
- Cost of additional aging time
  - 7 to 14 days Standard
  - Additional aging \$1.00 / Day minimum charge
- Space is the GREATEST limiting factor for extended aging to customers
- Aging occurs NATURALLY
- Muscle proteins are broken down during aging to create a more tender product





# DRY AGING

- A great resource located in the Journal of Animal Science: D. Dashdorj et al. 2016
- Evaporation of moisture
  - 32 to 34 F
  - 80 to 85% Relative Humidity
- Historically used as a preservation method
- Currently limited application due to time, resources, and space allocation
- Often focused on a piece method vs. a carcass
- Duration varies from 14 to 240 days
  - Longer duration influenced by consumer preference

## REVIEW

## Open Access



# Dry aging of beef; Review

Dashmaa Dashdorj<sup>1,2</sup>, Vinay Kumar Tripathi<sup>1</sup>, Soohyun Cho<sup>3</sup>, Younghoon Kim<sup>1</sup> and Inho Hwang<sup>\*</sup>

## Abstract

The present review has mainly focused on the specific parameters including aging (aging days, temperature, relative humidity, and air flow), eating quality (flavor, tenderness and juiciness), microbiological quality and economic (shrinkage, retail yields and cost) involved beef dry aging process. Dry aging is the process where beef carcasses or primal cuts are hanged and aged for 28 to 55 d under controlling environment conditions in a refrigerated room with 0° to 4 °C and with relative humidity of 75 to 80 %. However there are various opinions on dry aging procedures and purveyors of such products are passionate about their programs. Recently, there has been an increased interest in dry aging process by a wider array of purveyors and retailers in the many countries. Dry aging process is very costly because of high aging shrinkage (6 to 15 %), trims loss (3 to 24 %), risk of contamination and the requirement of highest grades meat with. The packaging in highly moisture-permeable bag may positively impact on safety, quality and shelf stability of dry aged beef. The key effect of dry aging is the concentration of the flavor that can only be described as "dry-aged beef". But the contribution of flavor compounds of proteolysis and lipolysis to the cooked dry aged beef flavor is not fully known. Also there are limited scientific studies of aging parameters on the quality and palatability of dry aged beef.

**Keywords:** Dry aging, Beef, Dry aging parameters

## Background

For centuries, dry aging was a common way for butchers to preserve and tenderize beef. Up to 50 years ago, dry aged beef was the norm, then with the advent of vacuum packaging along with increased efficiencies in beef processing and transportation, lost the dry aging process [1]. Thus there were small numbers of meat purveyors who actually participated in this type of aging process. However, recently there has been an increased interest in dry aging process by a wider array of purveyors and retailers in the United States and Australia [2]. Although there appears to be strong interest in Asian countries in dry aging, especially high end restaurants in many countries such as Korea, Japan, Singapore, Taiwan and Hong Kong are beginning to feature dry-aged beef on their menus. As demand for dry-aged beef increases, it created a high end niche in the food service market in Korea [3].

In general, there are two forms of beef aging techniques: wet and dry which result in flavor development

and more tender meat [4–7]. When beef is wet aged, it is put in a vacuum sealed package and stored in a controlled environment for a specific period of time. Dry aging is the process of hanging beef carcasses, subprimals or placing unpackaged primal cuts in a refrigerated room (Fig. 1) and left to age for several weeks or even months at controlled temperature, relative humidity and air flow [8, 9].

The key effect of dry aging is to concentrate the flavor that can only be described as "dry-aged beef" [1, 4, 6]. During the dry aging process, the juices are absorbed into the meat, chemical breakdown of protein and fat constituents occurs which result more intense nutty and beefy flavor. Moreover, during aging the beef's natural enzymes break down the proteins and connective tissue in the muscle which leads to more tender beef [10].

Furthermore, dry aging process is costly relative to other conventional processing methods, because of high aging shrinkage, trim loss, risk of contamination, and requirements of aging conditions and space. It is a very time consuming process and needs special care along with a large and evenly distributed fat content in meat. Therefore, only the highest grades of beef with necessary marbling can be dry aged. The main reason behind that

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# EATING QUALITY: Dry Aging

- A focus on concentration of flavor
- Research on Sensory (Taste) is inconsistent
- Smith et al. 2008 instrumental tenderness values declined 17% from 14 to 35 days
- Cutting Yields will vary from 3 to 10% of total weight
- Pricing should increase 19 to 25%



Three weeks aged  
Weight lost -10%



Aged 30 days  
Weight lost -15%



Aged 50 days  
Weight lost -23%



Aged 120 days  
Weight lost -35%

Fig. 2 Weight loss of strip loins through dry aging process

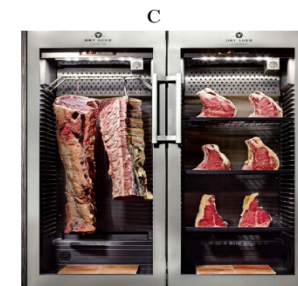


Fig. 1 The refrigerated coolers for dry beef; **a** Typical dry aging room; **b** dry aging maturing display; **c** meat maturing fridge



# WET AGING

- Aging of meat in vacuum packages
- Refrigerated conditions
  - 32 to 34 F
  - Humidity is not a requirement
- Products can be aged from 3 to 90 days in a package
- Industry Guide for Beef Aging funded by the NCBA
  - Concluded



# MEAT and CARCASS PROCESSING YIELDS

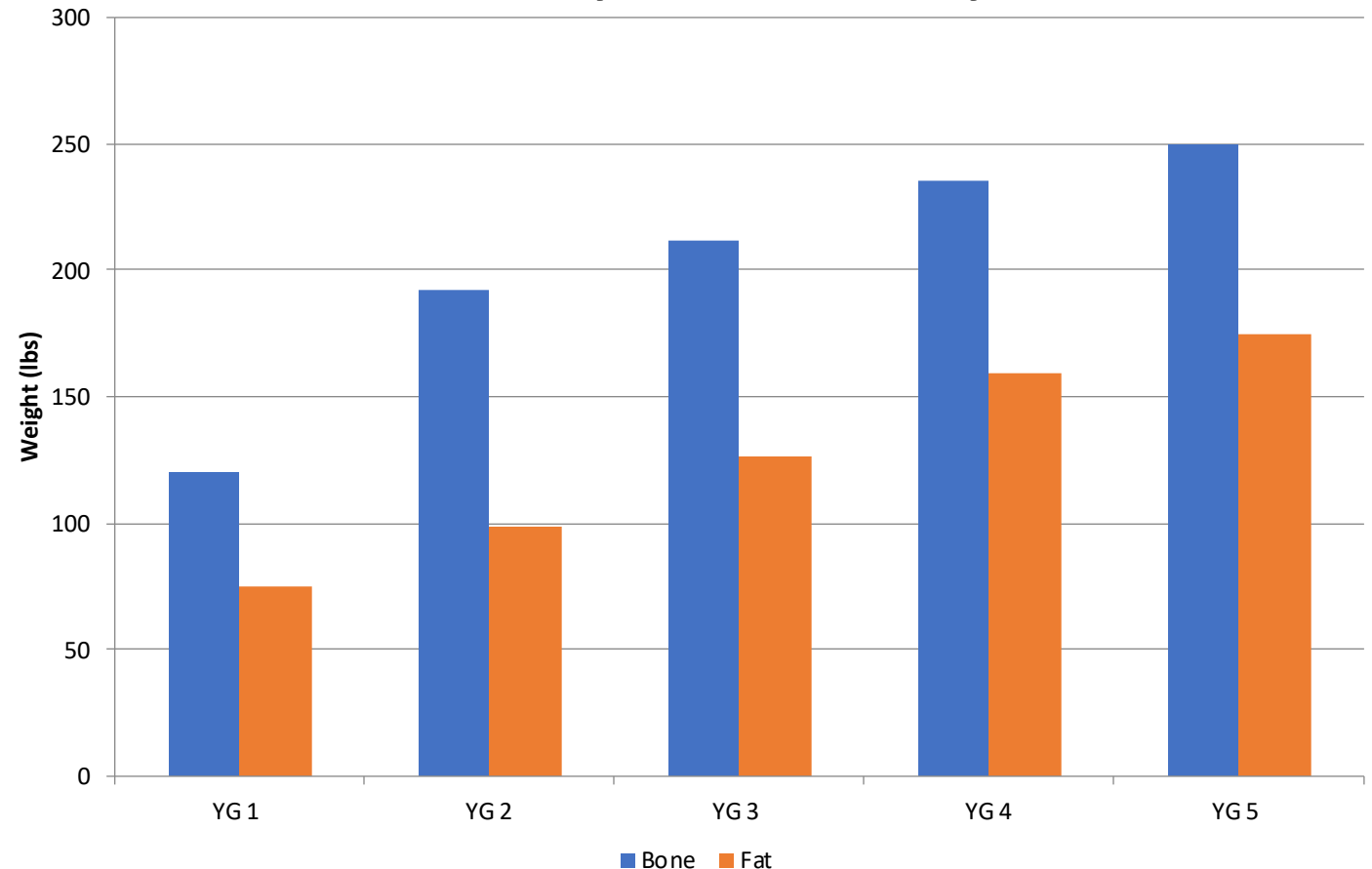
- Dressing percentage
  - Industry averages 60 to 64%
  - Percentage of live animal remaining after harvesting
    - Removal of the following:
      - Hide, Head, Feet, Viscera, Blood
  - Grain-Finished vs. Grass-Finished
    - Dressing Percent will vary **CONSIDERABLY**
    - Grain Finished = 60 to 65%
    - Grass Finished = 55 to 65%
    - Volume of food remaining in animal's VISCERA
- Mud, Hide Thickness, Bone Density, Dairy vs Beef Influence
- Dressing Percent calculation = 
$$\frac{[\text{HOT CARCASS WEIGHT}]}{\text{LIVE WEIGHT}} \times 100$$
- Examples:
  - $[875 \text{ HCW} \div 1375 \text{ LW}] \times 100 = 63.6\%$
  - $[950 \text{ HCW} \div 1570 \text{ LW}] \times 100 = 60.3\%$
  - $[785 \text{ HCW} \div 1352 \text{ LW}] \times 100 = 58.1\%$



# YIELD GRADING

- Yield Grades
  - Used as a measure of determining the percentage of **Boneless, Closely, Trimmed, Retail Cuts (BCTRC)**
  - Four factors influence YIELD GRADE calculations
    - Fat thickness opposite 12/13<sup>th</sup> rib (PYG-Preliminary Yield)
    - Kidney, Pelvic, Heart Fat (KPH)
    - Hot Carcass Weight (HCW)
  - Cutability can vary
    - 48 to 55%

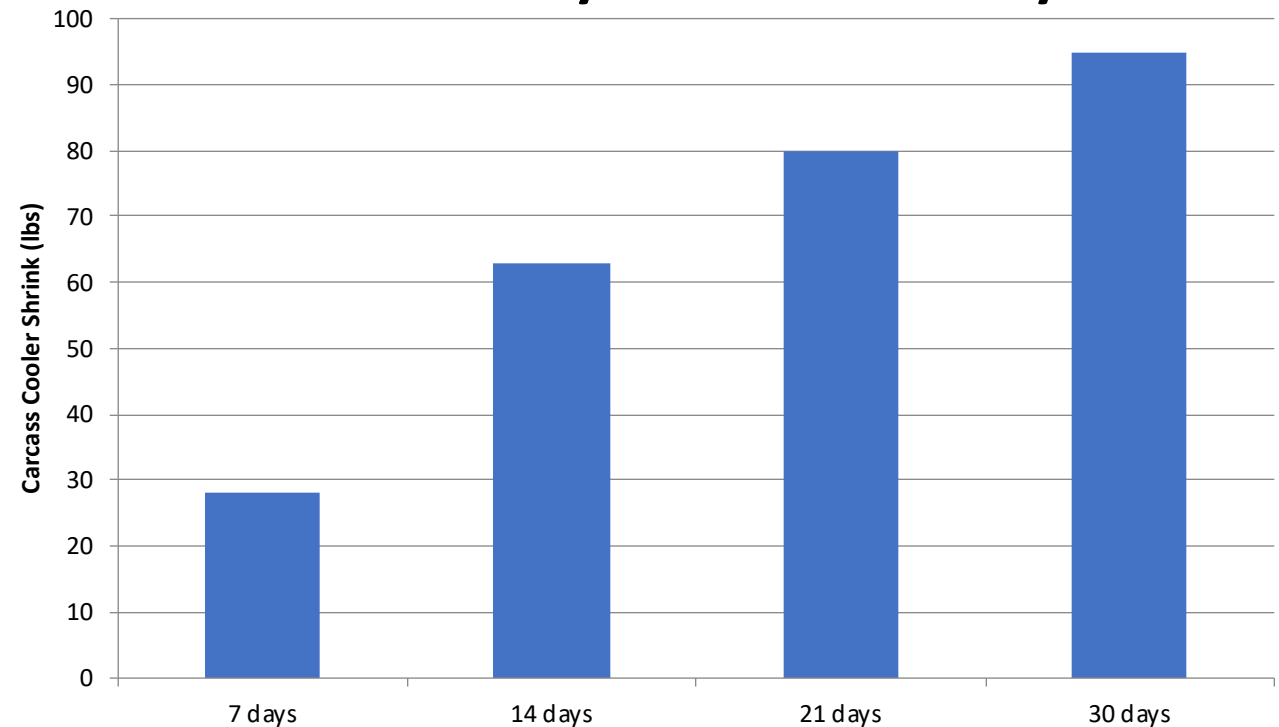
**Fat and Bone Weights of Carcasses Processed by a University Meat Laboratory**



# COOLER SHRINK

- Fresh Meat consists of 65 to 80% WATER
- Water loss occurs through evaporation
- Reduces TOTAL weight to be sold
- Excessive FAT cover on the carcass can reduce TOTAL moisture loss (Yield Grade 1 vs. Yield Grade 5)

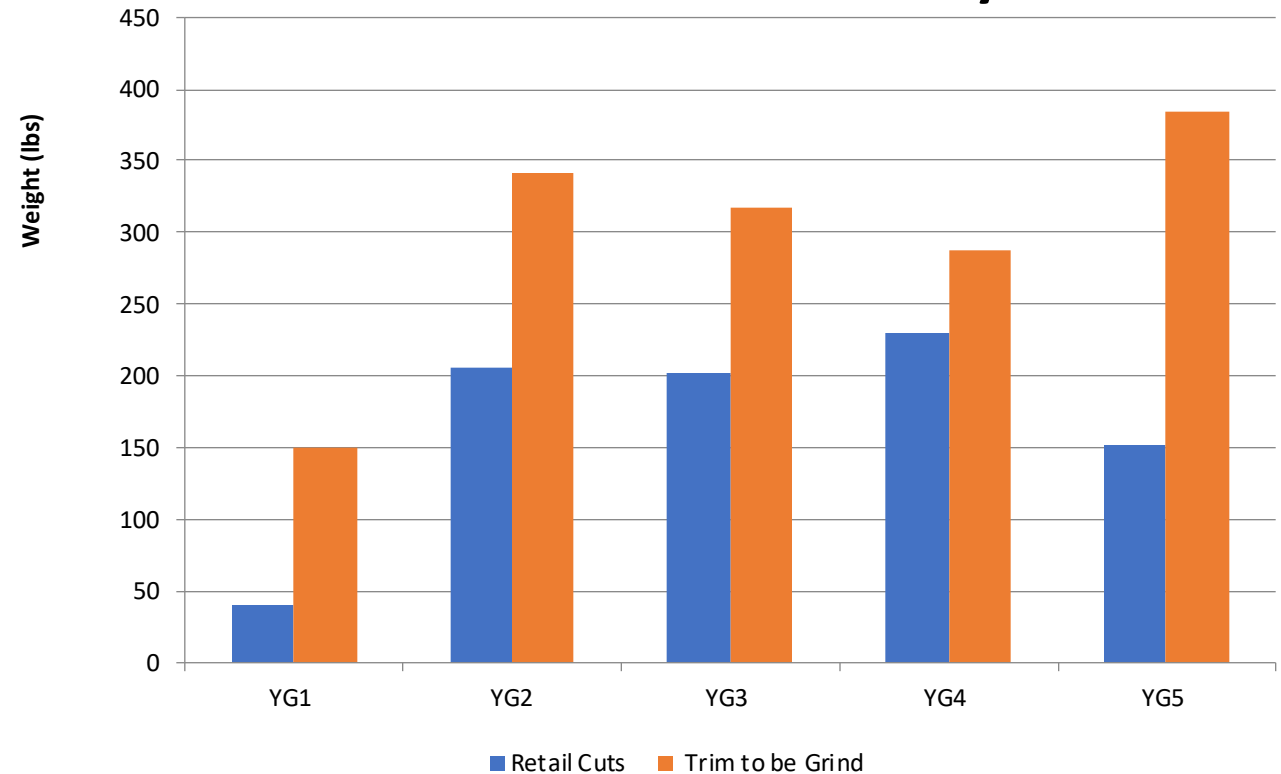
**Cooler Shrink of Carcasses Processed by a University Meat Laboratory**



# HOW MUCH MEAT DO I GET

- Generally a standard range for cut and packaged product is:
  - 52 to 58% of the CARCASS WEIGHT
- Influencers include:
  - Aging duration of carcass
  - Carcass Weight
  - Fat and Bone Volumes
  - Bone-IN vs. Boneless Cuts
  - Cutting and Trimming Expertise

## Final Product Yield of Carcasses Processed by a University Meat Laboratory





# FOCUS ON YOUR MEAT MERCHANDISING GOALS

- Selling Sides, Quarters, Whole Carcass  
Mixed Boxes, Vending Machines
- Direct Sales vs. Farmers Markets vs.  
Roadside Markets
- Minimize VARIETY or SPECIALTY Meat  
Products
  - Jerky
  - Smoked Sausage
  - Snack Sticks
- Consider these value - added meats as a  
completely different business model
- Greater Food Safety Risks



# MISCELLANEOUS ITEMS to CONSIDER

- Bones

- MAKE THEM EASY TO SELL \$0.25 TO \$1.00 per pound
- 100 to 150 Pounds from each carcass
- Soup Bones
- Osso Bucco
- BULK PACKAGE (5 to 10 lbs.)

- Fat

- \$0.10 to \$0.50 per pound
- 75 TO 125 Pounds Trimmed
- Cooking
- BULK PACKAGE (5 to 10 lbs.)



# TIPS to CONSIDER for SELECTING the PROCESSOR

- What form of Meat Inspection do I want my products manufactured under?
- Call early to schedule a PROECESSING date
  - 150 to 200 days from MARKET Weight
- Communicate EARLY with your processor
- Minimize the Number of Special Requests
  - Custom Labels
  - Specialty Cuts or Products
    - Smoked Sausage
    - Jerky
    - Snack Sticks
- Does it pay for additional Carcass Aging?
- What Processing Costs Can I Eliminate





# THANK YOU to our WEBINAR SPONSORS

- Alabama Cattlemen's Association
- Alabama Beef
- Sweet Grown Alabama
- Alabama Cooperative Extension Service
- Auburn University College of Agriculture

- Jason Sawyer, PhD.  
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SAVE THE DATE: Volume 3, Friday June 5<sup>th</sup>

# **Getting Your Product to Market and Getting Paid for It**

Ellie Watson (Sweet Grown Alabama)

Alex Tigue (Alabama Beef Extension Systems)

This is the  
**WORK**  
that makes the  
world work.