



Section 2.5

Production Flow And

Related Issues



Brooke Enders and Tom Field
Department of Animal Sciences
Colorado State University



Section Summary



- Address impacts of customer satisfaction and product quality on production flow
- Study impacts of management and cattle supply on product quality expectations
- Determine saleable yield from fabrication
- Address inventory and delivery questions
- Examine how existing beef programs manage consistent supply



Production Flow And Supply



- Your business and product reputation is determined by your ability to meet customer needs
- All retailers demand a consistent, dependable supply of product



“It is usually better to start small and build on successes, than to go deeply into debt before you have developed a proven product and a market for that product.”



Your Customers' Needs



- Analyze consumer demand information
- Determine who the end consumers are and what effect this will have on seasonal demand
- Determine the supply needs of your retail outlets by analyzing records
- Develop a method to ensure quality of product delivered to your customers



Importance Of Monitoring Consistency And Quality



- Yampa Valley Beef, Steamboat Springs, Colorado, sold pre-formed hamburger patties
- Ski area was largest customer
- Had no system in place to monitor product quality
- Sold several boxes of pre-formed patties with an incorrect lean to fat ratio to the ski area, resulting in complaints and near loss of the account



Importance Of Monitoring Consistency And Quality



- Oregon Country Beef sells a variety of natural beef products throughout the northwest at major retail outlets
- Excellent selling point to retailers: production practices guarantee a consistent, quality product, resulting in repeat buyers



Managing Quality Assurance



- Define quality
 - ▶ Measure it – quality grade, customer's eating experience
 - ▶ Explain it to your customers – label claims, in-store demonstrations
 - ▶ Define it to other producers – mission statements and goals
- Producer affidavit
 - ▶ How will you guarantee that all participants are following the protocols?



Managing Quality Assurance



- Product quality depends on management's ability to adhere to animal health and handling protocols
- Train staff in:
 - ▶ Pharmaceutical management and injection site protocol – correct use, storage and administration of product
 - ▶ Record keeping
 - ▶ Humane handling practices




Managing Quality Assurance



- Communicate your QA program to feeding and harvesting partners
 - ▶ Be sure they are willing to commit to following the program



Ensuring Quality – ISO 9000

- 
- International Organization of Standards
 - Family of standards, primarily for quality management
 - Quality - features of a product (or service) required by the customer
 - Quality management - what the organization does to ensure its products conform to customer requirements



Ensuring Quality – ISO 9000



- Defines how to consistently provide products that meet customer and applicable statutory or regulatory requirements
- Can tailor programs to the industry
- Offers a company the opportunity to enhance customer satisfaction and seek recognition of its quality management system through ISO accreditation



Cattle Supply: Source Verification



- Trace-back capability can help ensure all label claims are met
- Beneficial to have the ability to track individual animals through harvesting process
 - ▶ Monitor performance on the rail
- Dependent on your relationship with your packer and their identification system
 - ▶ Individual animal identification tied to rail number or kept with carcass through harvesting



The Cattle Supply



- Procurement options:
 - ▶ Own all cattle
 - ▶ Own some and buy additional cattle
- Depends on management practices on all participating ranches
 - ▶ Availability of labor
 - ▶ Calving/backgrounding/feeding schedule



The Cattle Supply



- Backgrounding may be necessary
- Premiums for delivering cattle at different times of the year
- Built-in flexibility with days on feed
 - ▶ Can feed some cattle longer than others
 - ▶ Determine how this will affect quality and consistency of product



Who's On The Team



- Set criteria for participants in accordance with labeling claims
 - ▶ Examine:
 - ◆ Current management practices
 - ◆ Reputation
 - ◆ Ability to be a team player
- Decide on initial investment options
- Develop information tracking and sharing system to facilitate transparency between participants



Feeding & Backgrounding



- Evaluate current facilities and feeding arrangements
 - ▶ Current feedlot arrangements - capacity and location
 - ▶ Current backgrounding options - availability of resource/feedstuff and land
 - ▶ Knowledge and willingness of feeder to accommodate special feeding practices i.e., natural feeds, special mixing, separating ingredients



Feeding & Backgrounding



- Decide on criteria for management practices
 - ▶ Implants
 - ▶ Vaccination schedules
 - ▶ Supplementation
 - ▶ Feeding steers & heifers together or separately
 - ▶ Weight and/or age cattle will enter feedlot



Additional Costs In Feeding



- Trailering costs:
 - ▶ To feedlot
 - ▶ To additional grazing land
- Labor costs for moving cattle
- Cost of leasing additional land



Management Implications: Quality Traits Of Grain-Fed vs. Grass-Fed Beef



- Carcasses from grass-fed beef have lower fat thickness and lighter carcass weights:
 - ◆ Rapid chilling due to minimal subcutaneous fat increases risk of cold shortening
 - ◆ Reduces muscle proteolysis (muscle fiber break-down by enzymes) because enzymes do not function in low temperatures
 - ◆ Possibility of smaller muscle fibers resulting in greater amounts of connective tissue



Management Implications




► Flavor:

“Recent data reported in the *2001 Cattle Report*, pp. 96-98, indicate there are significant flavor differences between grain-fed and grass-fed beef and U.S. consumers strongly discriminate against the flavor of grass-fed beef.”



Fabrication Considerations

- 
- Heifer carcasses tend to have more external fat trim than do steers*
 - Continental cattle tend to have a higher percentage of cut-out than do English cattle*
 - Generally, Select subprimals have higher saleable retail yields than Top Choice subprimals because Select subprimals have less trimmable fat**

*Source: D.B. Griffin et al. 1992. Estimates of Subprimal Yields from Beef Carcasses as Affected by USDA Grades, Subcutaneous Fat Trim Level, and Carcass Sex Class and Type. Journal of Animal Science, pp 2411-2430.

**Source: D.R. McKenna et al. 2003. Retail Yields from Beef and Round. Journal of Animal Science, pp 1482-1487.



Fabrication Considerations



- Yield of each subprimal as percentage of carcass weight decreases as Yield Grade increases*
- When estimating value, account for:
 - ▶ All processing costs
 - ▶ Reductions in weight due to processing
 - ▶ Any storage charges

*Source: D.B. Griffin et al. 1992. Estimates of Subprimal Yields from Beef Carcasses as Affected by USDA Grades, Subcutaneous Fat Trim Level, and Carcass Sex Class and Type. Journal of Animal Science, pp 2411-2430.



Estimated Slaughter And Fabrication Cost



- USDA market news estimates the cost of slaughter and fabrication on a weekly basis
- For the week ending September 12th
 - ▶ Drop credit: \$8.70/cwt of live weight
 - ▶ Processing/fabrication cost: \$10.50/cwt of hot carcass weight
 - ▶ Slaughter cost: \$45.00/head



Estimated Slaughter & Fabrication Cost



Drop credit
1200 pound steer
X \$8.70/cwt
\$104.40

Fab and slaughter
cost approximately
\$124.38*



Drop Credit



- Drop credit will typically cover cost of slaughter and some fabrication
- Difficult for a small plant to capture
- Loss of drop credit makes “out-of-pocket” costs much greater
- Try to capture and add value on all possible parts (e.g., bones, hide, offal)



Carcass Weight & Dressing Percentage



	Ave. carcass weight (lbs.)	Ave. dressing %
Fed heifers & steers	787.0 *	62.5
Cows	540.5 **	55.0
Bulls	858.5 **	55.0

*Source: National Beef Quality Audit, 2000; **Source: National Market Cow And Bull Beef Quality Audit, 1999.



Case Study 1 : Determining Pounds of Saleable Product



1,000 pound steer dresses 62.5%

1,000 pound beef type steer

X .625

625 lb. carcass



Case Study 1 : Determining Pounds of Saleable Product



Choice, Yield Grade 3

625 lb. carcass

X 74% yield of boneless subprimals and minor components with fat trim level of ¼ inch*

462.5 lbs



Case Study 1 : Determining Pounds of Saleable Product

462.5 lbs. of boneless subprimals and minor carcass components can yield approximately:

231.3 lbs. boneless, closely trimmed retail cuts (value cuts) from round, loin, rib and chuck
(462.5 lbs. x 50%*)

152.4 lbs lower value cuts (credit meats) of short ribs, flank steak, etc.

Remaining **78.8 lbs** sold as **ground beef**
(462.5 lbs. x 17.04%**)

*Source: Robert E. Taylor and Thomas G. Field. 1999. Beef Production and Management Decisions.

**Source: D.B. Griffin et al. 1992. Estimates of Subprimal Yields from Beef Carcasses as Affected by USDA Grades Subcutaneous Fat Trim Level, and Carcass Sex Class and Type. Journal of Animal Science, pp 2411-2430.



Case Study 2 : Determining Pounds of Saleable Product



1,200 pound heifer dresses 62.5%

1,200 pound beef type heifer

X .625

750 lb carcass



Case Study 2 : Determining Pounds of Saleable Product



Select, Yield Grade 2

750 lb carcass

X 76% yield of boneless subprimals and minor components with fat trim level of ¼ inch*

570 lbs

*Source: D.B. Griffin et al. 1992. Estimates of Subprimal Yields from Beef Carcasses as Affected by USDA Grades, Subcutaneous Fat Trim Level, and Carcass Sex Class and Type. Journal of Animal Science, pp 2411-2430.



Case Study 2 : Determining Pounds of Saleable Product

570 lbs. of boneless subprimals and minor carcass components can yield approximately:

285 lbs. boneless, closely trimmed retail cuts (value cuts) from round, loin, rib and chuck
(570 lbs. x 50%*)

187.9 lbs. lower value cuts (credit meats) of short ribs, flank steak, etc.


Remaining **97.1 lbs.** sold as **ground beef**
(570 lbs. x 17.04%**)

*Source: Robert E. Taylor and Thomas G. Field. 1999. Beef Production and Management Decisions.

**Source: D.B. Griffin et al. 1992. Estimates of Subprimal Yields from Beef Carcasses as Affected by USDA Grades Subcutaneous Fat Trim Level, and Carcass Sex Class and Type. Journal of Animal Science, pp 2411-2430.



Inventory Considerations

- 
- Account for growth and decline in product demand, don't "over-grow"
 - "Build your burger market first or at least at the same time you are offering high value cuts." *
 - ◆ Without a solid market for hamburger, inventory will quickly become stockpiled
 - Value cuts make money - hamburger alone will not pay for the carcass



Considering Cooler Space




Yampa Valley Beef:

- ▶ Limited cooler space
- ▶ Boxes of patties stacked too high and too deep, resulted in unsatisfactory chilling rates and inconsistencies in product quality
- ▶ Additional difficulty encountered in keeping inventory in rotation - moving older product in a timely manner





Additional Considerations

- 
- How will additional value-added options affect meat yields?
 - ▶ Dry aging results in 7-8% additional shrink
 - If you over-supply, how will you clear out excess product?
 - ▶ Sell to a commodities market
 - ▶ Offer specials/discounts to customers
 - Is packing capacity adequate to meet “peak season” demand or will you have to store product?



Additional Considerations



- Do you have enough cooler space to keep product?
- How will you keep current on your inventory in the cooler?
- How will you deliver product safely to your customers?
 - ▶ Do you have a truck(s)?




Managing Supply



- US Premium Beef
- Nebraska Corn-Fed Beef
- Certified Hereford Beef
- Oregon Country Beef



US Premium Beef

- 
- Cooperative structure
 - Need to own/lease shares in the organization to enroll cattle and must pay membership fees
 - Shareholders must deliver one finished animal per year for each share they own
 - Member producers must complete a delivery schedule form each fiscal year
 - ▶ Allows USPB to know how many cattle will be delivered to plants during each four-week period



US Premium Beef



- Two member categories:
 - ▶ Even slot – producer delivers same number of cattle in each of the 13, four-week delivery periods. 40% flexibility allowed from one period to the next.
 - ◆ Example: If member committed to deliver 1,000 head/period, can deliver between 600 and 1400 head in any period without penalty.
 - ▶ Odd slot - deliver cattle, once, twice or several times during year. Submit delivery schedule annually for following year.



US Premium Beef



- Members with stock may lease shares to other members if they cannot deliver cattle against their shares
- Small per head penalty assessed if member does not deliver or lease his shares. Penalty refunded one year from member's assigned delivery date if USPB has enough earnings to cover its debt.





Nebraska Corn-Fed Beef



- Slotting Premium
- Offered to producers/feeders willing to commit cattle to future marketing windows
- Slotting premiums vary depending on time of year and cattle supply
 - ▶ Higher premiums in September, October and November
 - ▶ Lower premiums in May, June & July
 - ▶ Estimated premiums \$1.00/cwt to \$4.00/cwt



Nebraska Corn-Fed Beef



- Limited number of cattle for each marketing period will receive slotting premiums
- Slotting premium will be paid to NCFB qualified carcasses that grade Choice, but do not receive CAB premiums
- Signed contract binds feeder to specified number of cattle delivered to Swift and Co. on selected date and ensures feeder a Slotting Premium



Nebraska Corn-Fed Beef



NCFB board members and staff believe that the Slotting Premium Program “is a critically important step in balancing the demand/supply equation that has tripped up so many source verified, branded programs in the past.”





Certified Hereford Beef



- Greater Omaha Packing Company
- Procures cattle from contracted and non-contracted feedlots within 150 to 200 miles of plant
 - ▶ Producers can retain ownership of cattle when fed at CHB feedyard*
- Contracts with 12 retail companies, totaling 350 stores

Source: Personal Correspondence. 2003. Bret Hultman, Greater Omaha Packing Company.
Online at <http://www.greateromaha.com>.

*Source: Certified Hereford Beef. Online at <http://www.herefordbeef.org>.



Certified Hereford Beef



- Monitors weekly retail movements to determine supply
- Trial and error determined 3,000 certified carcasses a week are needed to meet supply
 - ◆ Cattle pass visual appraisal and then carcass evaluation in order to be stamped as Certified Hereford Beef*

Source: Personal Correspondence. 2003. Bret Hultman, Greater Omaha Packing Company.
Online at <http://www.greateromaha.com>.

*Source: Certified Hereford Beef. Online at <http://www.herefordbeef.org>.



Certified Hereford Beef



- Keep 3 months of cattle on feed to guarantee supply



Source: Personal Correspondence. 2003. Bret Hultman, Greater Omaha Packing Company.
Online at <http://www.greateromaha.com>.

*Source: Certified Hereford Beef. Online at <http://www.herefordbeef.org>.



Oregon Country Beef



- Cooperative entity that cannot be bought or sold
- Comprises several family-owned ranches across Oregon
- Estimated demand and subsequent supply determined on an annual basis
- Each ranch agrees to deliver specified number of cattle per year



Oregon Country Beef



- Diverse ranch locations facilitate varied calving and backgrounding schedules, and allow for year-round delivery of animals to the feedlot
- All animals are fed at Beef Northwest Feeders, Boardman, Oregon and harvested at Washington Beef, Toppenish, Washington
- Carcasses must meet loin eye area, quality grade and yield grade specifications



Oregon Country Beef



- Carcasses not meeting specifications are purchased at commodity prices by Washington Beef
- Producers “own” the product until retail sale occurs and then receive payment
- Carcass data is available to all OCB producers

