



Beef: A Tasty Topic

- Flavor Fundamentals: A Brief Overview
- Beef Flavor Pairings
- What Influences Beef Flavor and Tenderness

FLAVOR FUNDAMENTALS: A Brief Overview

Taste and Flavor are NOT one-in-the-same

- Taste refers to 5 basic receptors



- Flavor combines taste PLUS



FLAVOR FUNDAMENTALS:

Taste is Key to Survival

- *Sweet* means energy-giving carbohydrates
- *Salt* indicates essential minerals for life-sustaining cell functions and wound healing
- *Sour* says “proceed with caution,” since many foods sour as they deteriorate
- *Bitter* warns “spit it out, don’t touch it,” because many natural toxins taste bitter
- *Umami* signifies life-giving protein

FLAVOR FUNDAMENTALS: The Fifth Taste

- Umami [oo-MOM-ee] – derived from Japanese word for delicious, *umai*
- Discovered in early 1900s by Dr. Kikunae Ikeda at Tokyo's Imperial University
 - > In 1997, researchers from the University of Miami identified taste buds on the tongue and have since cloned receptors that respond to umami
- Described as meaty and savory or delicious
- Comes from glutamates – the salts of an amino acid – and other small molecules called nucleotides

FLAVOR FUNDAMENTALS:

3 Natural Sources of Umami

- Umami taste is produced by naturally occurring compounds
 - > Glutamic acid, an amino acid
 - > Salts of glutamic acid (glutamates)
 - > Nucleotides
- Beef contains all three

FLAVOR FUNDAMENTALS:

Natural Sources of Glutamic Acid and Glutamates

- Kelp
- Cheeses
- Green tea
- Seaweed
- Sardines
- Fresh tomato juice
- Peas
- Corn
- Mushrooms
- Tomatoes
- Oysters
- Potatoes
- Chinese cabbage
- Duck
- Soybeans
- Chicken
- Spinach
- Mackerel
- Carrots
- **BEEF**
- Beets
- Milk



FLAVOR FUNDAMENTALS:

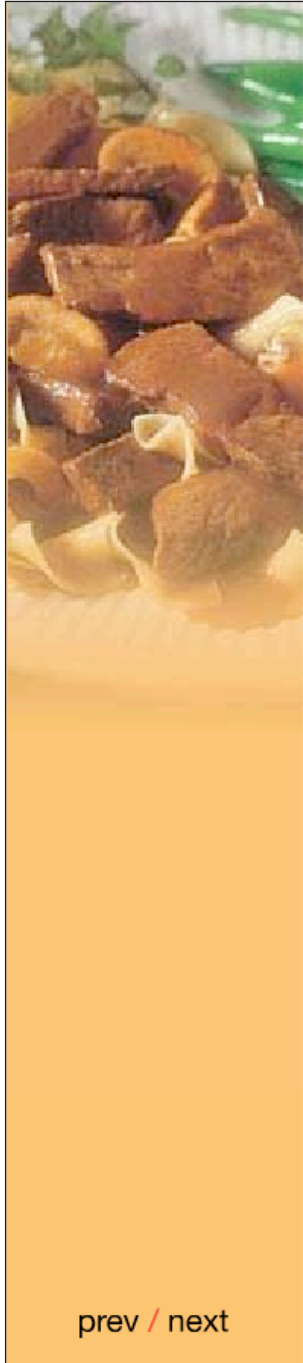
Natural Sources of Nucleotides

5'-Guanilate

- Dried mushrooms
- Mushrooms
- **BEEF**
- Chicken

5'-Inosinate

- Bonito
- Mackerel
- Sardines
- Tuna
- **BEEF**
- Prawns
- Chicken
- Cod



FLAVOR FUNDAMENTALS:

The Amazing Umami Effect

Synergism: the whole is greater than the sum of its parts

- Combined, individual umami compounds have a magnifying effect on each other
 - > Mushrooms + steak
 - > Red wine or tomato sauces + beef
- 8X more flavor with mix of two umami foods
- Ripening, aging and fermenting foods increase their umami flavor compounds
 - > Truly ripe tomatoes
 - > Aged Parmigiana-Reggiano
 - > Red wine, soy sauce, fish sauce

Top Flavors to Pair with Beef

- Aged Cheeses*
- Bacon*
- Barbecue Sauce*
- Bell Peppers
- Garlic
- Mushrooms*
- Mustard
- Onions
- Peppercorns
- Red Wine*
- Sour Cream*
- Soy Sauce*
- Thyme
- Tomatoes*
- Worcestershire Sauce*

**umami-rich ingredients*

BEEF FLAVOR PAIRINGS:
Love at First Bite

- Steak with Bleu Cheese
- Prime Rib with Red Wine Mushroom Sauce
- Teriyaki Grilled Steak
- Sesame-Soy Beef Stir-Fry
- Beef & Wild Mushroom Ragout

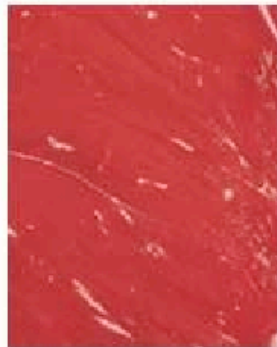


America's Love-Hate Relationship with Fat

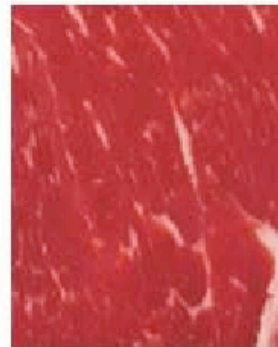
- Consumers prefer to see low marbled steaks, but prefer to eat high marbled steaks
- Fat imparts flavor and juiciness and contributes to why we enjoy – and crave – beef
- 3 types of fat in meat:
 - > Subcutaneous (external)
 - > Seam (intermuscular)
 - > Marbling (intramuscular)
 - flecks of fat within muscles
 - directly related to beef's flavor and juiciness

Marbling

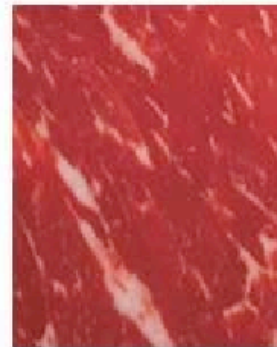
- How fat affects flavor
 - > Fatty acids (the building blocks of fat) experience chemical changes during cooking and produce potent flavor compounds
 - > Fat acts as a storehouse for aromatic compounds that are released during cooking
 - Many beef flavor components are found in these aromatic compounds



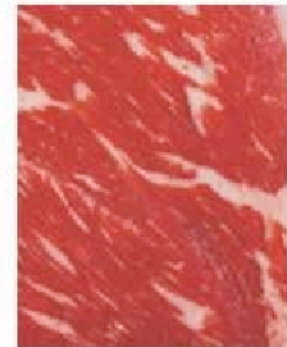
slight



modest



moderate



moderately abundant



Marinades

- Marinade – a seasoned liquid
 - > Tenderizes
 - > Adds flavor
- Successful marinating matches the marinade type and marinating time to the beef cut
 - > Tender beef cuts
 - Marinate only to add flavor
 - 15 minutes - 2 hours
 - > Less tender beef cuts
 - Marinate to tenderize
 - 6 to 24 hours

Tenderizing Marinades

- Include acidic ingredients like:
 - > Citrus juices
 - > Vinegar
 - > Vinaigrettes
 - > Salsa
 - > Yogurt
 - > Wine
- And natural ingredients with tenderizing enzymes like:
 - > Fresh ginger
 - > Pineapple
 - > Papaya
 - > Kiwi
 - > Figs
- Tenderizing marinades penetrate about 1/4 inch



Marinades

- Beef marinated for >24 hours may get mushy
- Use nonreactive glass or stainless steel container
- Always marinate in the cooler, never at room temperature
- Turn beef occasionally to allow even exposure
- Never save and reuse a marinade
- Reserve some marinade before adding it to raw beef to use as a baste or sauce
- Bring marinade that has been in contact with raw beef to a full rolling boil and boil for at least 1 minute before using as a sauce

Rubs

- Dry rubs
 - > Herbs, spices and other seasonings
 - > Apply to the surface
- Paste-type rubs
 - > Use small amounts of wet ingredients such as:
 - Oil, crushed garlic, mustard, soy sauce, worcestershire sauce



Curing & Brining

- Rely on salt mixtures/solutions
- Originally developed for meat preservation
- Now used to produce distinctive flavors, such as in corned beef and pastrami

Top Factors Affecting Beef Tenderness:

- Animal Maturity
- Postmortem Aging
- Muscle Type
- Marbling
- Marinating
- Mechanical Tenderization
- Proper Cooking Methods
- Degree of Doneness
- Proper Carving Technique

Top Factors Influencing Beef Flavor:

- Marbling
- Quality Grade
- Cooking Method
- Degree of Doneness
- Postmortem Aging
- Marinating
- Freezing/Thawing
- Added Flavors
- Beef Production (feeding practices)

A TASTY TOPIC:

Beef

- Flavor and taste aren't one-in-the-same
- Umami is a bona fide fifth taste
- Pairing beef with other flavors enhances beef enjoyment
- Marinades, rubs, curing and brining are ways to enhance beef's "craveable" flavor