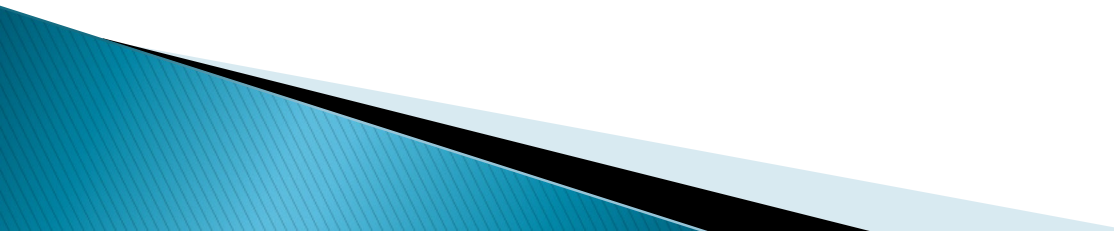# Sensory Evaluation Practices for Wines

Charles Sims
Food Science and Human Nutrition
University of Florida

"This Wine Tastes Good"

- Orthonasal olfaction – the "nose"
- Retronasal olfaction – flavor in the mouth
- Tastes – sweet, sour, bitter
- Astrigency
- Carbonation
- Brain processes all of this
  - Learn to identify wines
  - Learn to like/dislike wines

Orthonasal Olfaction (Odor)

- Molecules from the outside enter nose
- Olfactory receptor cells high in the nose
- Receptors bind to specific parts of the flavor volatiles
  - Nerve impulse to brain
- Brain interprets this "pattern" of impulses

Taste

- Four basic tastes
  - Sweet, sour, salty, bitter
- Taste buds located on papillae on tongue
  - Taste buds have receptor cells
  - Sweet & bitter receptors = similiar to odor receptors
  - Salty and sour = ion channels
- Astrigency and carbonation = not tastes

Retronasal Olfaction

- Flavor volatile molecules are coming from mouth
- Process is similar, except brain can tell where the signal originates
  - Processed in different part of brain than orthonasal
- What we normally call "flavor"

Olfaction

- Odors are "learned"
  - Brain remembers the template
  - Can remember hundreds of odors
- How do we describe odors?
  - Not as easy as taste
  - Usually describe as other odors
    - The "peach" character in a white wine

How to Evaluate a Wine

- Evaluate color and appearance
  - Clarity, color
- Swirl and smell
  - Off-odors? Pleasant? Typical of the wine?

How to Evaluate a Wine

▶ Sip the wine
   ◦ Move around to all parts of the mouth
▶ Taste
   ◦ Sweet or dry? Acidity? Bitterness?
▶ Flavor
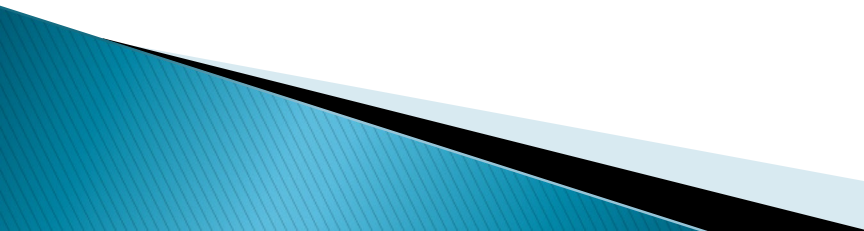   ◦ Pleasant? Typical of the wine?
▶ Astrigency
   ◦ Mainly red wine

Types of Sensory Tests

- Difference tests
- Consumer acceptability/preference tests
- Descriptive analysis

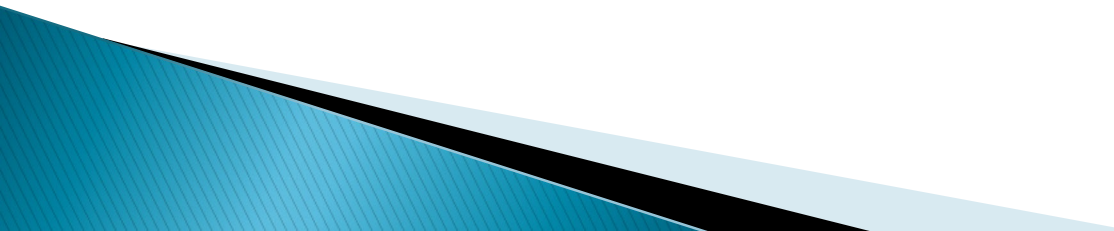# Difference Testing

- To determine if there is a difference between 2 wines
  - Comparing wines fermented with 2 different yeasts
  - Easy, powerful test, but not much information
- Triangle test
  - 50+ panelists
  - 2 same, 1 different
  - Panelists pick the odd sample
  - Correct or incorrect

Consumer Acceptance Tests

- Assess acceptability and preference by consumers
  - A real challenge with wines!
- Must target consumers
  - Use consumers of the product
  - So much variation in the liking of wines
- Examples
  - Different viticultural practices (pruning, fertilizer)
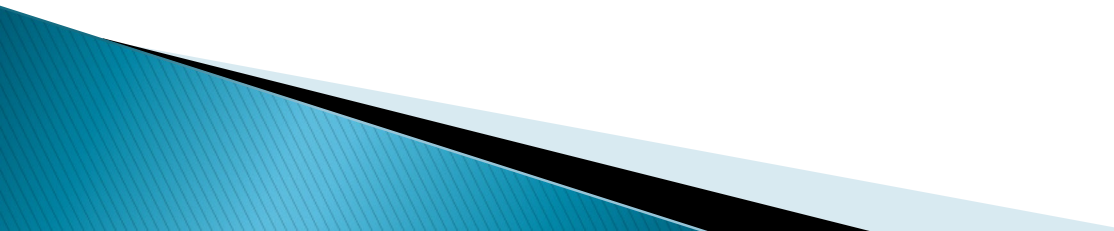 - Different skin contact time
  - New variety

Consumer Acceptance Tests

- Acceptability
  - How much do consumer like
  - Need 80+ panelists
- Various hedonic rating scales
  - 9-point hedonic scale
  - 20 point scale for wines
  - Others
- Proper statistical analysis

Descriptive Analysis

- Used to describe/rate the various attributes of samples
- Can include appearance, aroma, flavor, taste
- Most difficult of all the sensory tests
  - 10–12 panelists, lots of training needed
- Very common for wines
  - Often want to describe a wine vs. acceptability
    - Chardonnay vs. Riesling
    - Cabernet Sauvignon grown in France vs. California
    - Blanc du Bois wines

"Expert Opinions"

- Wine Spectator, Wine Enthusiast, Wine Advocate, James Suckling, etc.
- Usually 1 person tasting and evaluating wines
  ◦ Highly "trained" wine experts
  ◦ Usually a 100 point scale
  ◦ Assign a number rating, verbal description of wine
- People value these opinions!

Questions? Comments?