

*Sensory Analysis and The Flavor Leadership
Criteria*

Vermont Craft Brewers Conference

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THE UNIVERSITY OF VERMONT
EXTENSION

Northwest Crops and Soils Program

Most importantly....

- Know your beer (Or your customer's beer)
- Know your customer (The beer drinker)
- Give them what they want.....all the time
- Have Fun! It is a great industry.



Sensory plays a key role in all of the four critical areas to develop and maintain successful products in the marketplace.

Communicating a promise/image of an appealing product

**Delivering
flavor the
consumer
wants**

**Quality
and
Consistency**



**Providing the
“right”
package**

**Attractive
and
Functional**

Producing and distributing the product economically



Our highest priority is the health and well being of our sensory panelists (Tasters)

- Everything we will provide you is safe to smell and taste
- We take Covid-19 seriously and have taken ever possible precaution to ensure your safety. We recommend that you do the same.
- We do worry about allergies, so be careful
- Smell and taste as little product as you need
- Never taste samples that you do not know the entire history of such as product returns and complaints



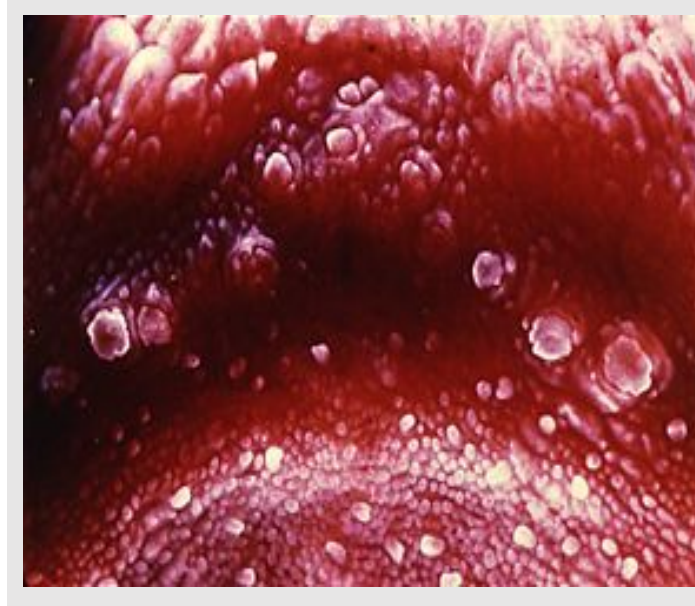
Flavor is comprised of three measurements:

- 1 Basic Tastes**
- 2 Aromatics**
- 3 Mouthfeels**



Basic Tastes are measured using the taste buds on our tongues:

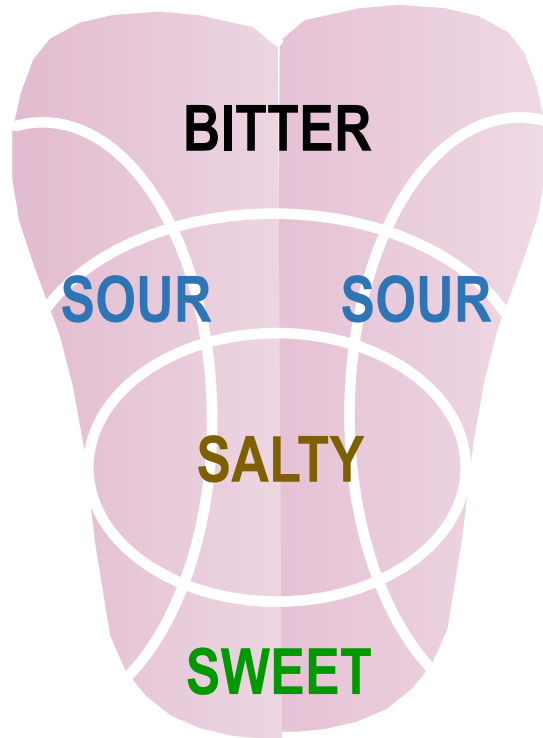
Basic tastes refer to those sensations perceived through the stimulation of the receptor cells enclosed within the taste buds on the tongue.



The taste must dissolve in the saliva in your mouth to be carried into the taste bud and detected.



We have five types of taste buds on our tongue:



BASIC TASTE	PERCEIVED...
SWEET	Tip of Tongue
SALTY	Front Sides of Tongue
SOUR	Back Sides of Tongue
BITTER	Back of Tongue

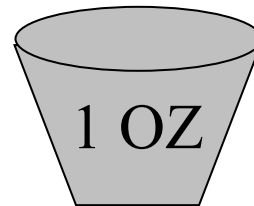
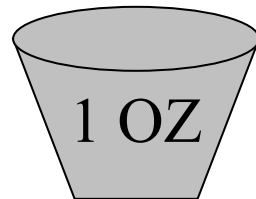
Note: We recognize umami as a fifth basic taste.

We can only detect basic tastes in our mouth since we only have these 5 types of taste buds.

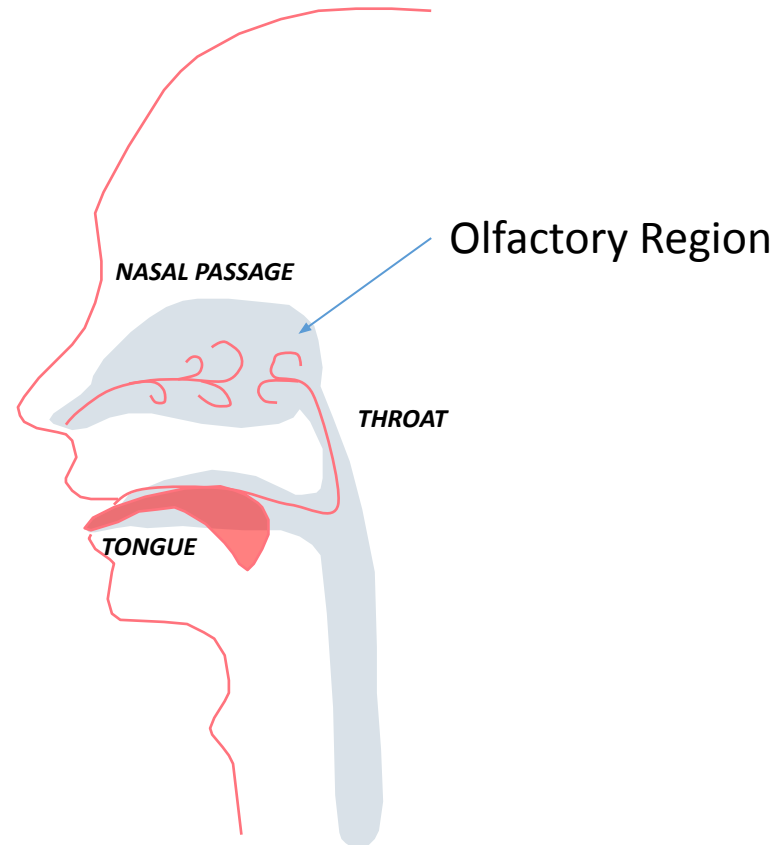


Taste Activity:

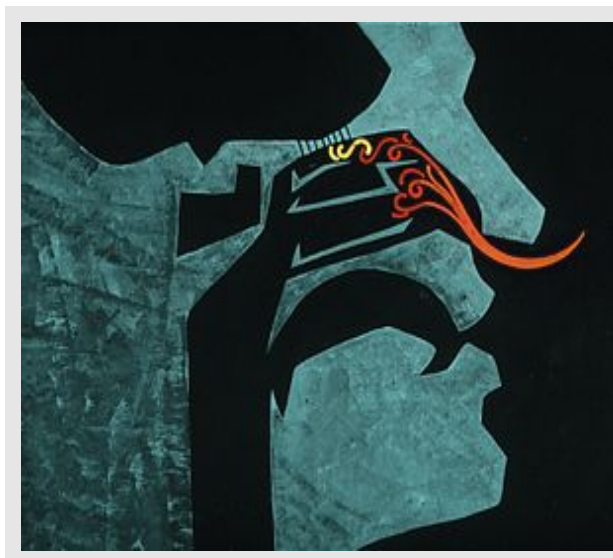
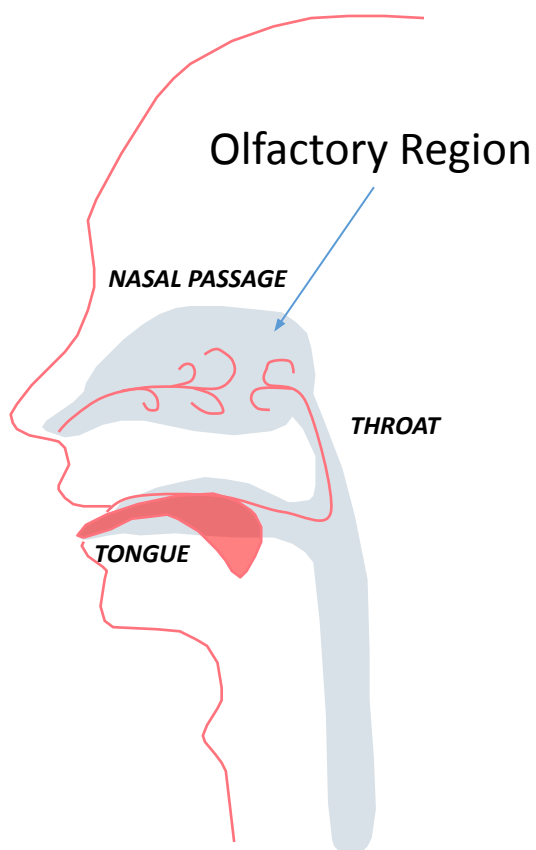
Basic Taste Solutions



Aromatics are perceived in the olfactory region located in your nose.



Aromatics have two paths they can take to be detected in the olfactory region.



Aroma aromatics travel directly through the nose, and are detected in the olfactory region of the nose.



Flavor aromatics are compounds volatilized in the mouth, travel up the back passage, and are detected in the olfactory region of the nose.



Mouthfeels describe chemical or physical sensations that are felt in the mouth, nose, or throat.

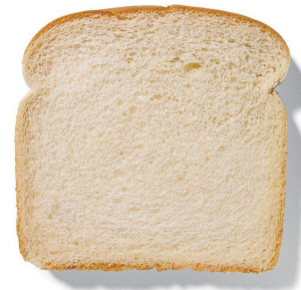
Astringent



Dry/tannin



Yeasty



Harsh



Bite and burn



Mouthfeel:

Mouthfeels Practice



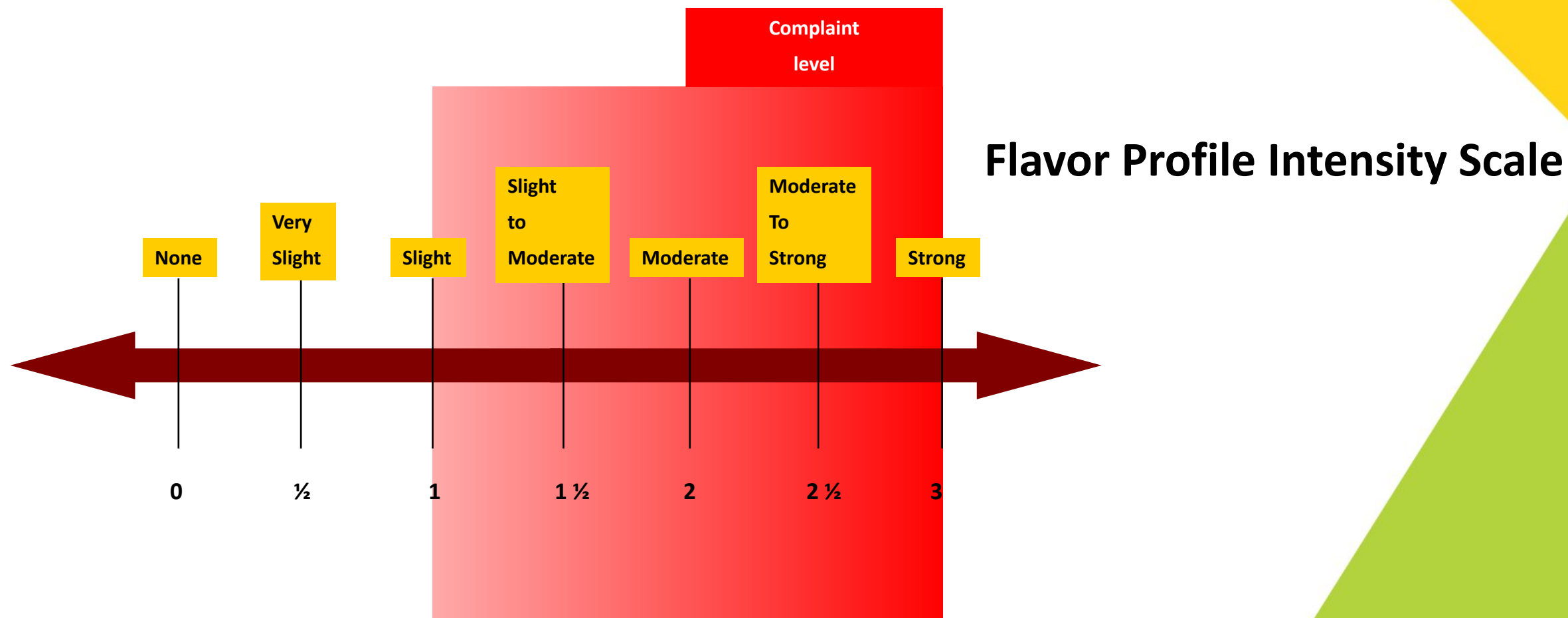
The most powerful intensity scale, because it can be measured consistently and relates best to end users, is the original seven-point intensity scale developed by ADL and MIT.

Intensity Scale

0	= None
1/2	= Very Slight
1	= Slight
1 1/2	= Slight to Moderate
2	= Moderate
2 1/2	= Moderate to Strong
3	= Strong



Intensity drives consumption and complaints.



Perennial sales leaders have five things in common:

The Flavor Leadership Criteria - FLC	
1	Aromatic Identity <ul style="list-style-type: none">• Immediate impact of identifying flavor
2	Amplitude <ul style="list-style-type: none">• Rapid development of balanced, full flavor
3	Mouthfeel <ul style="list-style-type: none">• Compatible mouthfeel factors
4	Off-notes <ul style="list-style-type: none">• No “off” flavors.
5	Aftertaste <ul style="list-style-type: none">• Short clean aftertaste



1

Flavor Leaders exhibit an immediate impact of the identifying flavor.

- **Neutral beers** – nothing sticks out early
- **Hop-led beers** – hops and related characteristics
- **Grain-led beers** – grain, roast, sweet aromatics and related characteristics
- **Yeast-led beers** – yeasty/spicy notes, sour aromatics, and related notes
- **Fruit/spice/other-led beers** – fruit, spice, and related characteristics



2

Flavor leaders have a rapid development of a balanced (harmony) and Full (complex) flavor.



3

Flavor leaders have compatible mouthfeel factors

- **Neutral beers** – slight dry, astringent
- **Hop-led beers** – moderate tannin
- **Grain-led beers** – slight dry and astringent
- **Yeast-led beers** – slight astringent and throat catch
- **Fruit/spice/other-led beers** – slight dry and sting/burn



This is critically important for craft beers compared to mainstream beer.



4

Flavor leaders are known for their consistent lack of “off” or unexpected flavors.



5

Flavor leaders are known for their short and clean aftertaste.

Within a style, the beers with the shorter aftertaste win in the market.



What can you do to meet the FLC?

- Screen and use quality ingredients:
 - **Hops** (field testing and hop teas – focus on off-notes such as sulfur garlic and vegetable notes)
 - **Grains** (field testing and congress worts – focus on off-notes such as musty and medicinal)
 - **Yeast** (caution using too many generations and monitor fermentation conditions)
 - **Water** (taste brewing water on a regular basis)



What can you do to meet the FLC?

- Understand your process:
 - Cleaning materials
 - Filtration and filtration aides
 - Process steps: mashing, hop kettle, fermentation, and finishing
- Packaging:
 - Filler operations (i.e. control oxygen)
 - Materials (sensory screen all materials before use)
- Manage distribution for freshness



Thank you!

Questions?

