



Implementing a Sensory Program

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BREW
SCHOOL**

Agenda



Introduction

What can a Sensory Program Do?



Program Buy-In

Getting the support you need to be successful



Panelist Management

Recruitment, training, validation, retention



Test Types

True to Brand, Difference Testing, Preference Testing, Descriptive Analysis, and when to use them



Data Management

Storing data, monitoring brand performance, tracking panelist performance, the importance of visualization



TTB Interactive Exercise

Building a brand profile, tasting, decision-making considerations



Why Sensory?



- Recipe Development
- Raw Ingredients Procurement
- QA/QC
- Team Building



Assess Organizational Capacity

- People
- Space
- Time
- Materials

Elect a Sensory Champion

- Passion
- Skillset
- Job Title

Establish Stakeholder Buy-In

- Management Support
- Quality
- Marketing

Define Goals

- What questions are you trying to answer with sensory analysis?

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Panelist Management

Recruitment, Validation, Retention



Panelist Recruitment



- Clear message of purpose and commitment level
- Who is available?
 - Like, actually available
- Natural acuity vs trainability



Panelist Training and Validation



- Clear message of purpose and importance
- Specific to the task at hand
- Validation methods
 - Repeated Measures
 - Group Alignment



Panelist Retention



- Performance feedback
- Accomplishments and praise
- Competition
- Goodies!





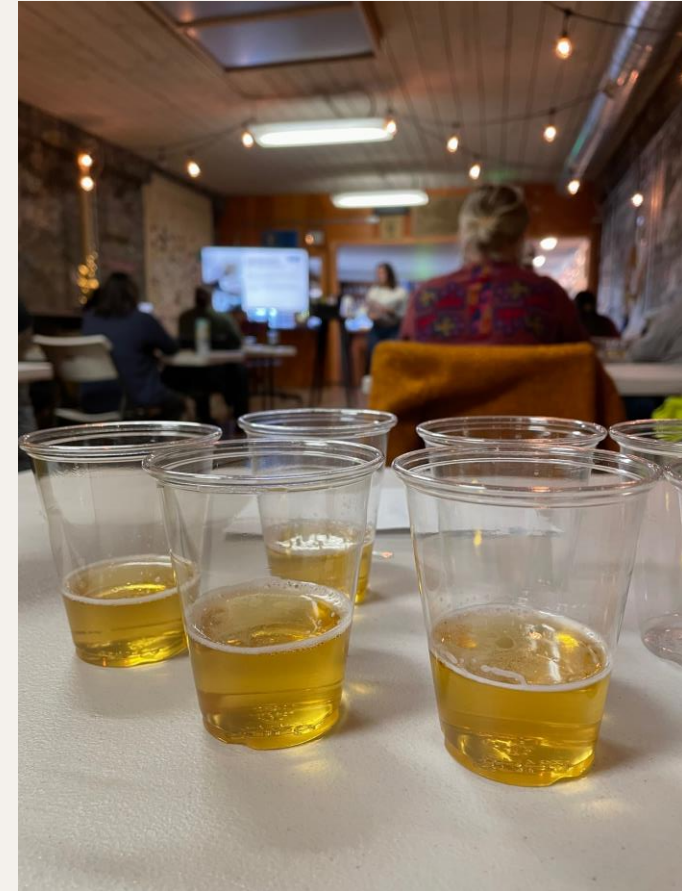
Test Types

And what questions they answer

True to Brand



- Answers the questions: “Does this beer taste like the way we usually describe this brand?” “Is this beer out of spec?”
- TTB testing should be used for brands consistently produced in the brewery, not for one-off’s
- Binary scoring: Pass/Fail
- Panelists are very familiar with the brand being tested and should be trained and validated on off-flavors in beer
 - Sometimes spiked samples are included with the test samples to keep panelists on their toes!



True to Brand



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- What does it look like?
 - Panelists are given a baseline of the brand and then rate each production sample or package release sample according to that baseline and give it a pass or fail rating
- Utilize a P-chart (percent defect chart) to track data/batch-to-batch variation (DraughtLab is a program well-equipped for this)
 - P-chart defines:
 - Center Line/Mean: average percent total defect
 - Upper Control Limit: highest you can go in terms of variability w/in a batch for it to be considered TTB, should be quite low if you're making a consistent beer
 - Lower Control Limit: bottom line/zero (0)

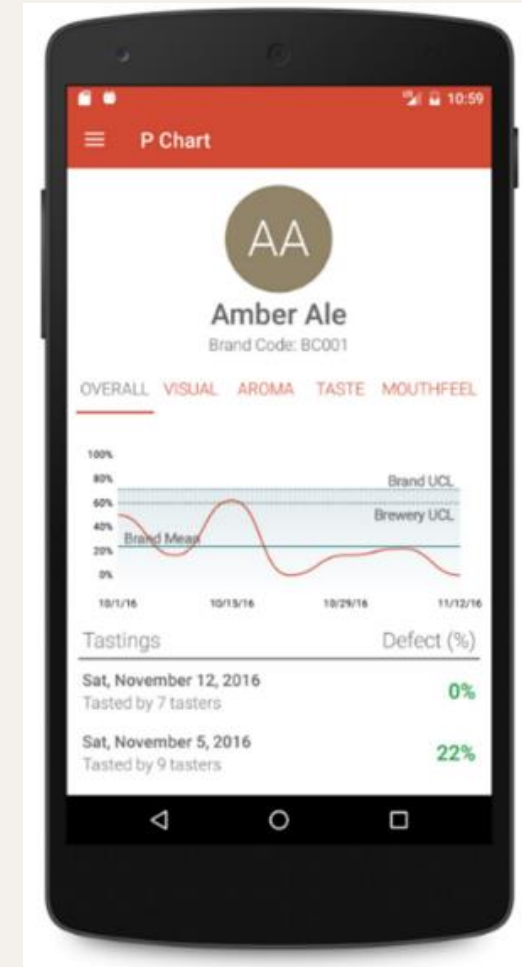
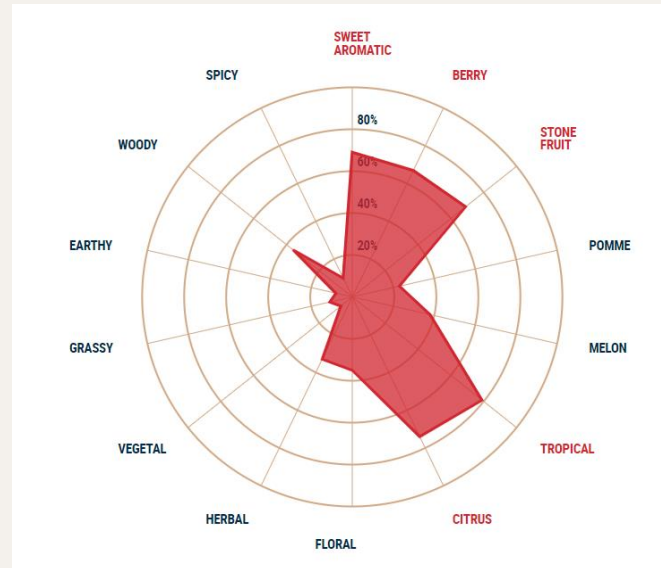


Image credit: <https://www.draughtlab.com/blog/pchart>

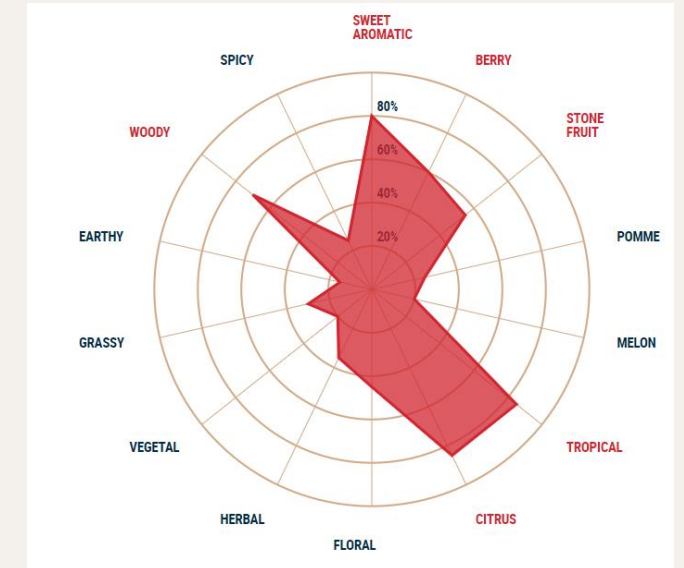
Descriptive Analysis



- Answers the very broad question: What does this sample smell or taste like?
- Most useful for:
 - Recipe development
 - Marketing
- What does it look like?
 - It requires highly trained panelists to sit in a booth and fill out long ballots describing every aspect of aroma or flavor of a sample



Idaho 7[®] Brand

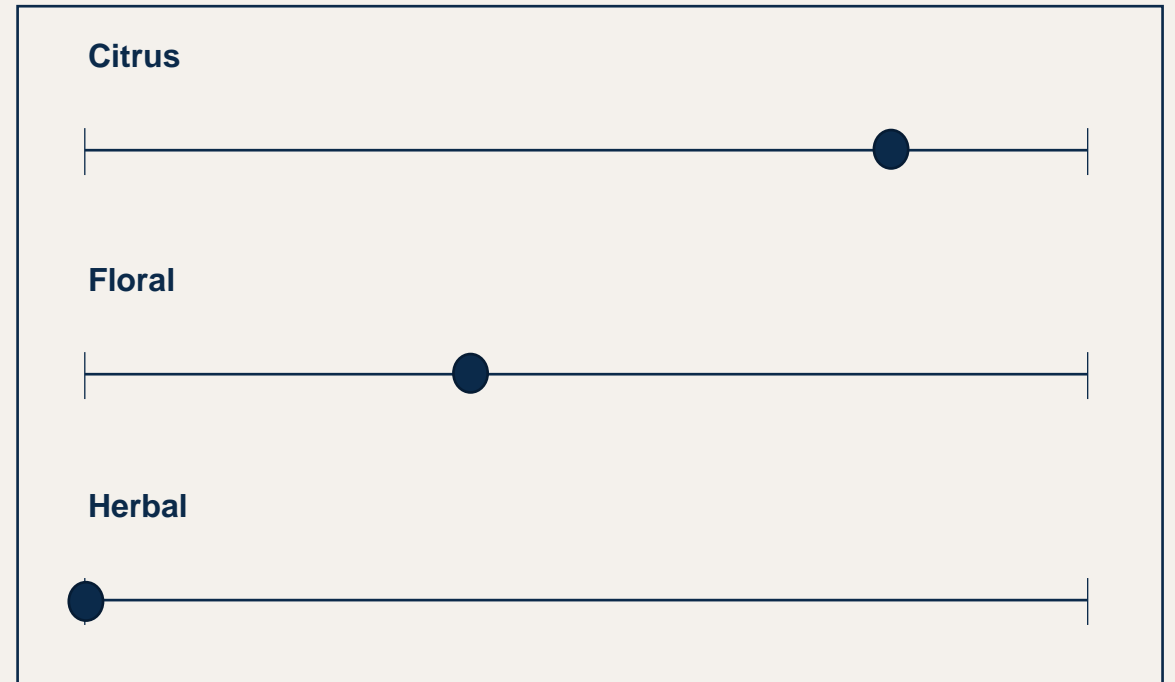


Cryo Pop[®] Original Blend

Descriptive Analysis - QDA



- Quantitative Descriptive Analysis requires panelists to rate the intensity of each sensory aspect
- The results are then the average of all panelists for each attribute
- Panelist responses can be statistically “normalized” to address the fact that everyone uses the scales a little differently



Descriptive Analysis - CATA



- Check All That Apply requires panelists to simply “tick” a box to indicate whether the sample contains any hint (at all) of each sensory aspect
- In the CATA method, we use the frequency of “ticks” as a proxy for intensity
 - If 9/10 panelists detect citrus, the sample is likely very strong in that character
 - If 3/10 detect citrus, its probably there, but more likely just a hint
- Requires less rigorous training and doesn’t rely on panelists being consistent at reporting intensities, but gives lower-resolution data than QDA

Citrus

Floral

Herbal

Descriptive Analysis – Roundtable



- Answers the question: “What are people’s general thoughts on this sample?”
 - It can be guided by a moderator to answer more specific questions like “Do people generally like this? What are people’s first impressions? What main flavors pop out?”
- What does it look like?
 - A group of people, sitting around a table, drinking beer
 - Fun fact: the table doesn’t have to be round!
 - Sample is distributed to everyone, and “popcorn style” conversation is guided by a moderator who keeps the conversation flowing in the right direction

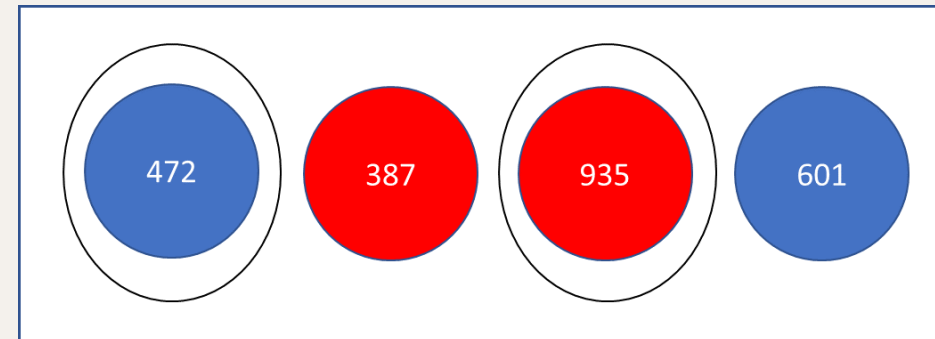
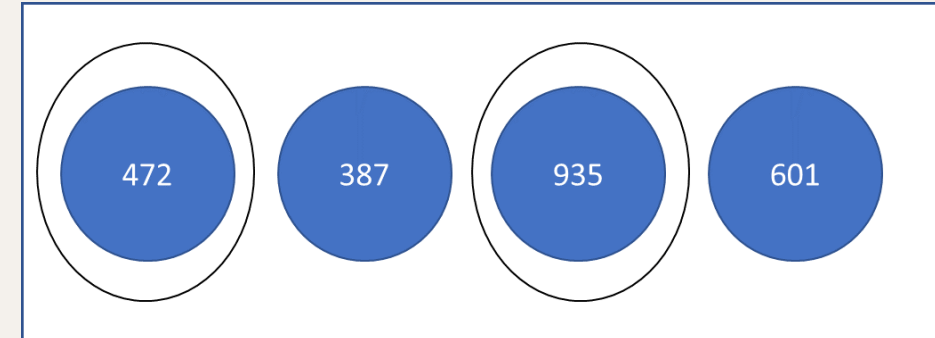
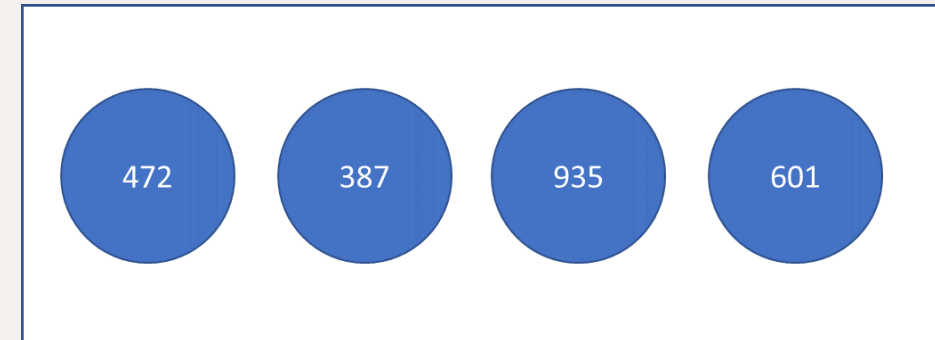


fineart
america

Tetrad Test



- Answers the question: Are these two samples noticeably different?
- Most useful for
 - Checking a raw material or process change
- This is an example of an “unspecified difference test,” meaning that the nature of the difference is unknown to the assessors.
 - Ex: We are not asking for the assessor to identify the *sweeter* samples, just the samples that are the *same*



Preference Testing



- Answers the question: Do people like this?
 - Or better, which of these do people like best?
- Most useful for
 - Choosing between 2 potential versions of a recipe
 - Selecting raw materials (i.e. the hop variety you'd like to feature in your new hazy IPA)
- What does it look like?
 - Present the assessor with two (sometimes more) blind-coded samples
 - Care should be taken that the assessors do not all assess the samples in the same order.
 - Care should also be taken to present an appropriate number of samples for each assessor to reduce the possibility of sensory fatigue.
 - Assessors are asked to either quantify their "liking" or simply to choose which they prefer





Data Management

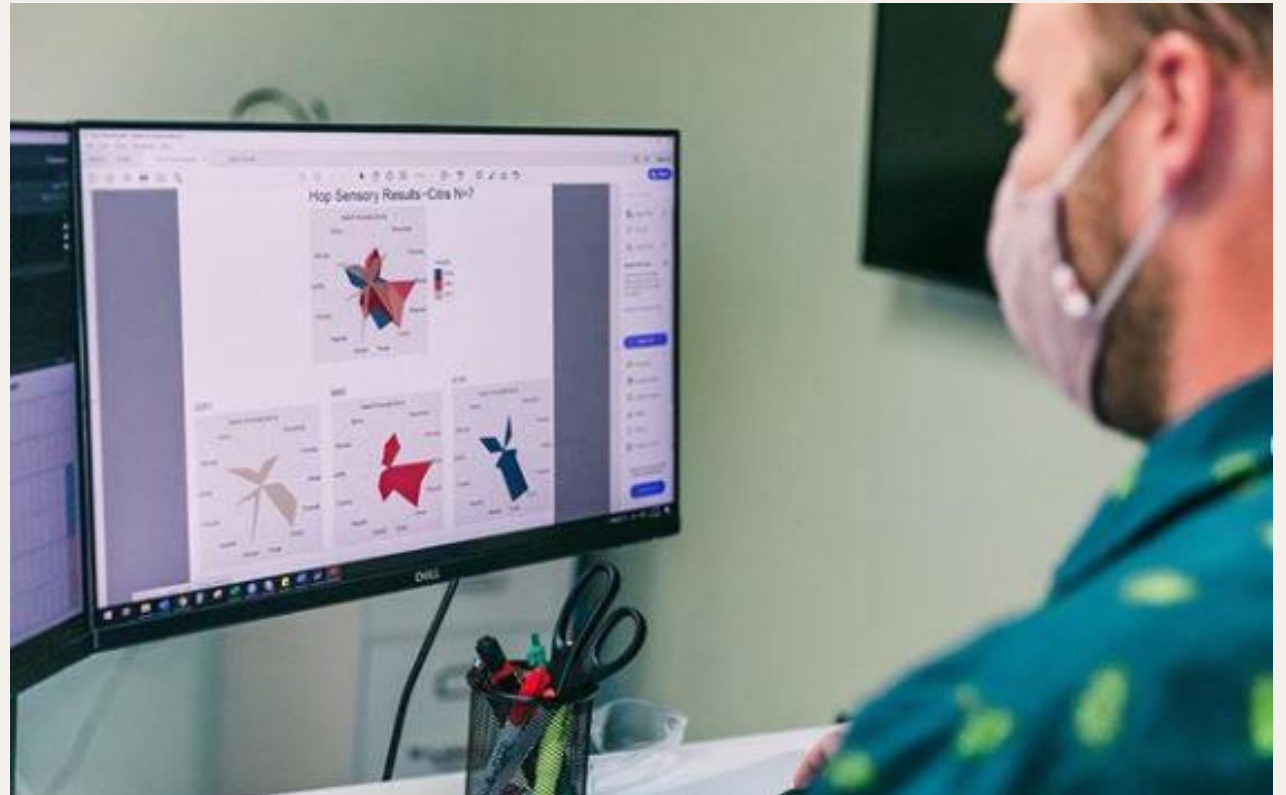
Storing Data, Panelist Performance, Brand Performance, Visualization



Data Management



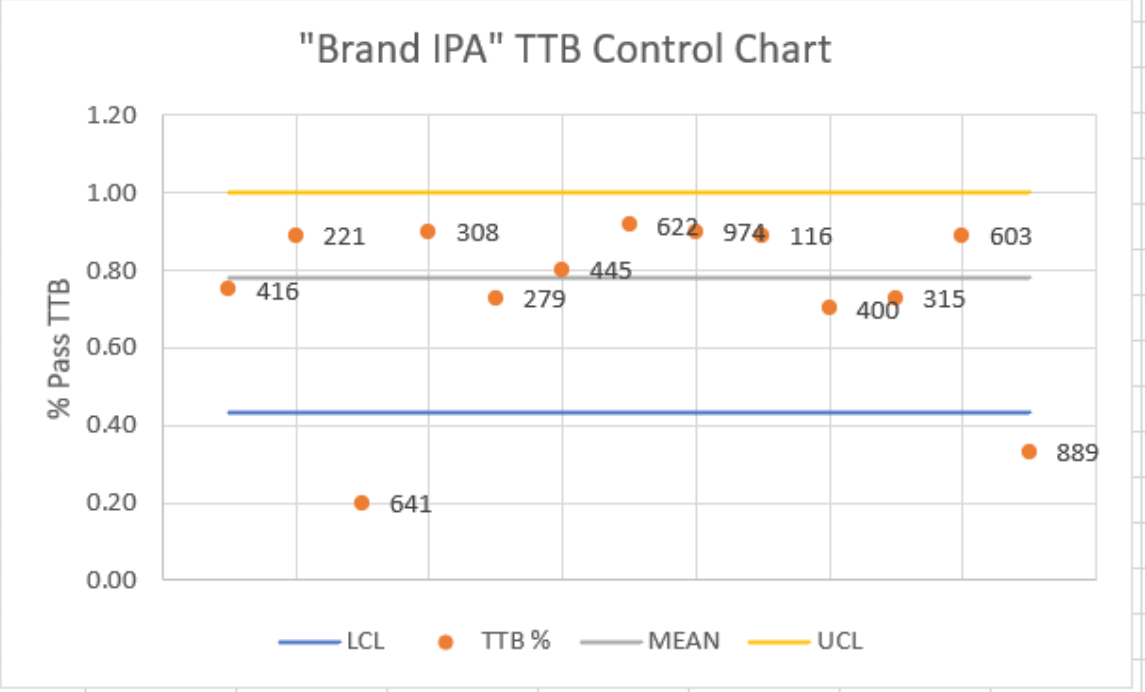
- Data Collection and Storage
 - Early and often
 - Affordable options
- Panelist Performance
 - Repeated Measures
 - Leaderboards
- Brand Performance
 - P-charts
- Visualization
 - Decision making
 - Buy-in



Data Management - TTB Example



	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1		Sample Code	LCL	TTB %	MEAN	UCL								
2		416	0.43	0.75	0.78	1								
3		221	0.43	0.89	0.78	1								
4		641	0.43	0.20	0.78	1								
5		308	0.43	0.90	0.78	1								
6		279	0.43	0.73	0.78	1								
7		445	0.43	0.80	0.78	1								
8		622	0.43	0.92	0.78	1								
9		974	0.43	0.90	0.78	1								
10		116	0.43	0.89	0.78	1								
11		400	0.43	0.70	0.78	1								
12		315	0.43	0.73	0.78	1								
13		603	0.43	0.89	0.78	1								
14		889	0.43	0.33	0.78	1								
15														
16														





True to Brand - Interactive Exercise

True to Brand - Interactive Exercise

Building a Brand Profile



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- Start with a roundtable and include your panel and key stakeholders to talk about what makes each brand different from the others
- Highlight what you care most about
 - Eliminate what doesn't matter
- Adapt to screen for your brewery's most common faults or process issues

True to Brand - Interactive Exercise

Tasting



- You have 4 samples in front of you, and they're all Field 41
 - 000
 - This is our Control, the True to Brand profile standard
 - 491 - testing for release
 - 688 - testing for release
 - 327 - testing for release
- Using your Control beer and the Brand Profile, indicate on your ballot whether you consider each "test" beer to be True to Brand

True-To-Brand Sensory Ballot (example)

Brand Name: Field 41

Visual: Clear to slight haze with no sediment. Yellow color with good foam retention and small bubble size.

Aroma: Balanced malt and hops. Citrus (grapefruit, mandarin orange), grassy, cereal, wheat. Medium aroma intensity in glass and pronounced retro-nasal flavor intensity with no faults detected.

Taste: Solidly present bitterness, moderate to high.

Mouthfeel: Smooth and crushable, dry, and slightly watery mouthfeel

Directions: 1. Assess the sample. Use the brand description to rate "TTB-Yes" if the sample matches the brand description or "TTB-No" if it does not match the brand description for each modality by placing a checkmark in the corresponding box.
 2. If you determine the sample is not TTB for any modality, describe why in the comments box.
 3. After you have rated all modalities for brand conformity, rate the sample for "Overall TTB."

Sample 1				Sample 2				Sample 3			
Sample ID: _____		Sample ID: _____		Sample ID: _____		Sample ID: _____		Sample ID: _____		Sample ID: _____	
Initials: _____		Initials: _____		Initials: _____		Initials: _____		Initials: _____		Initials: _____	
Date: _____		Date: _____		Date: _____		Date: _____		Date: _____		Date: _____	
Brand Name: _____		Brand Name: _____		Brand Name: _____		Brand Name: _____		Brand Name: _____		Brand Name: _____	
	TTB-Yes	TTB-No	Comments		TTB-Yes	TTB-No	Comments		TTB-Yes	TTB-No	Comments
Visual				Visual				Visual			
Aroma				Aroma				Aroma			
Taste				Taste				Taste			
Mouthfeel				Mouthfeel				Mouthfeel			
Overall				Overall				Overall			
Comments: _____				Comments: _____				Comments: _____			

True to Brand - Interactive Exercise

The Reveal



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- 491 - Same as Control! Field 41 stored cold for 2.5 weeks
- 688 - Field 41 stored at RT for 2.5 weeks
- 327 - Field 41 heat-cycled for 2.5 weeks

True to Brand - Interactive Exercise

Decision Making Considerations



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- What happens if your panel fails a beer?
 - What is the cutoff for failure?
- Will management allow appropriate action to be taken?
 - If not, don't waste your time!



Conclusions

- Start with company-wide buy in
- Tap into personnel resources
- Start with the bare bones
- Track data and use it to make your case for your sensory program ... repeatedly



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THANK YOU!

