The Search for the Golden Tongue

Understanding Differences in Taste Acuity for Product Developers

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Research Objectives

• How do Product Developers compare to the general population in taste acuity?

• Is there a profile of an “acute taster”
Methodology
CONSUMERS
N=182
50/50 male/female
Ages 18-72
Four cities: LA, Dallas, Chicago, NY

PRODUCT DEVELOPERS
N=101
R&D associates based in Dallas
Methodology

Respondents completed a series of 2AFC tests for each of four basic tastes

- Sweet
- Salty
- Sour
- Bitter
Methodology

Which Sample is Sweeter?

Decreasing Concentration

Presentation order was rotated within pairs
Individual Threshold =

The lowest concentration that was consistently correct
The Samples

- Sweet
- Sugar
- Sour
- Citric Acid
- Salty
- Salt
- Bitter
- Caffeine
Respondents were tested for PTC sensitivity

Rated bitter intensity of both PTC strips and control strips.
- PTC taster = PTC paper > Control

50-70% of the population can taste PTC.

PTC is a bitter-tasting compound related to the bitter notes found in many vegetables.
The Cups!

13,584 sample cups!
RESULTS
Consumers Taste Profiles
Consumer Taste Profiles

Highest Concentration on all four tastes = 2 on Universal Scale
A Note on Bitter

- The bitter samples were harder for the respondents
  
  - Corresponds with personal experience that bitter is harder for people to identify and understand

![Chart showing the percentage of detectors detecting bitter at different concentration levels. The chart shows an increasing trend from 0% to 100% as the concentration level increases.]
A Note on Bitter

- Bitter threshold not significantly higher for PTC sensitive respondents

Chi-Square p-value: 0.198

64% of the respondents were PTC tasters.
A Note on Bitter

• Not all “bitter” is created the same. Humans have dozens of different bitter receptors on their tongues.

• Being “taste blind” to one bitter compound does not mean you are “taste blind” to them all.
Defining “Acute Taster”

Acute Taster =
Respondents whose threshold is at the highest levels for Sweet, Salty, and Sour

*(Got every single sweet, salty, and sour correct)*
RESULTS
Consumer Demographics
The youngest age group has a very high level of acute tasters.
Although there were more female acute tasters, the difference was not significant.
“Acute Taster” Profile – “Foodies”

Taste Acuity does not seem related to being a “foodie”

% Acute Tasters by “Foodie” Status*

Chi-Square p-value: 0.440

*“Foodie” Status based on proprietary screening questionnaire that has been in use for 5+ years at Frito Lay
“Acute Taster” Profile - Income

Chi-Square p-value: 0.641

No trend by Income

% Acute Tasters by Income

Annual Income, x1,000

Chi-Square p-value: 0.641

No trend by Income

% Acute Tasters by Income

Annual Income, x1,000

Chi-Square p-value: 0.641

No trend by Income
“Acute Taster” Profile - Education

Chi-Square p-value: 0.002

High School = Fewer Acute Tasters
Some College = More Acute Tasters
Product Developers vs. Consumers
Within R&D group, all respondents were between 25-65.

Because age matters, will only compare with consumers in these age groups.

N=113  - Consumers, Targeted
N=101  - R&D
Product Developers vs. Consumers

Age and Gender similar both groups.
Product Developers vs. Consumers

Differences observed in Education and PTC Sensitivity

**Education**
- **Product Developer**
  - Post Grad: 60%
  - 2-4 yr Degree: 20%
  - Some College: 20%
  - High School: 0%

- **Consumer, Targeted**
  - Post Grad: 40%
  - 2-4 yr Degree: 40%
  - Some College: 20%
  - High School: 10%

**PTC Sensitivity**
- **Product Developer**
  - No: 80%
  - Yes: 20%

- **Consumers, Targeted**
  - No: 60%
  - Yes: 40%
Which do you believe is true?

Product developers have **a higher** proportion of “acute tasters” than the consumer population

Product developers have **a lower** proportion of “acute tasters” than the consumer population

Product developers have **the same** proportion of “acute tasters” than the consumer population
Product Developers vs. Consumers

Chi-Square p-value: 0.008

• The ability to create new and delicious food products requires a lot more than a super sensitive palate.

• Highlight importance of seeking consumer feedback on our products.
On the Job Training?

Acute Tasters by Years at Company

Chi-Square p-value: 0.868

No trend observed with tenure with company – thus no “training” effect
Other Interesting Comparisons

"Foodie" Status

Chi-Square p-value: 0.247

Product Developers were not more likely to be “Foodies” either!
Taste Profile for: Joe Engineer

1. **Sweet Threshold**
   - Sensitivity: Average

2. **Salt Threshold**
   - Sensitivity: Low

3. **Sour Threshold**
   - Sensitivity: High

4. **Bitter Threshold**
   - Sensitivity: Average

PTC Tasting Gene: Yes
Concluding Thoughts

• Being a great product developer takes
  • Creativity
  • Passion
  • Problem Solving
  • Team Work
  • Technical Skills

• Product Developers in the food industry are not all foodies, nor do they spontaneously grow more taste buds.
Concluding Thoughts

• It is Important to listen to consumers. We need to hear what they are telling us.

• Product Developers may not represent “typical” consumer, so be very careful collecting consumer data from them.
Thank You

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P&K – Consumer Testing Partner


Thank You!

Questions?