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

The Respondents

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

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Methodology

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

Sweet

Salty

Sour

Bitter

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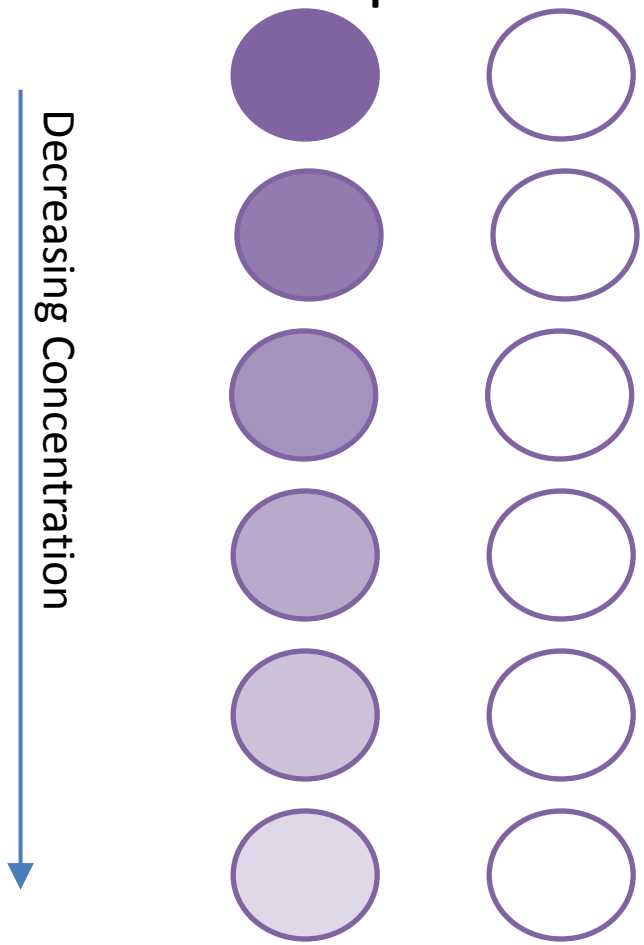
Methodology

Which Sample is Sweeter?

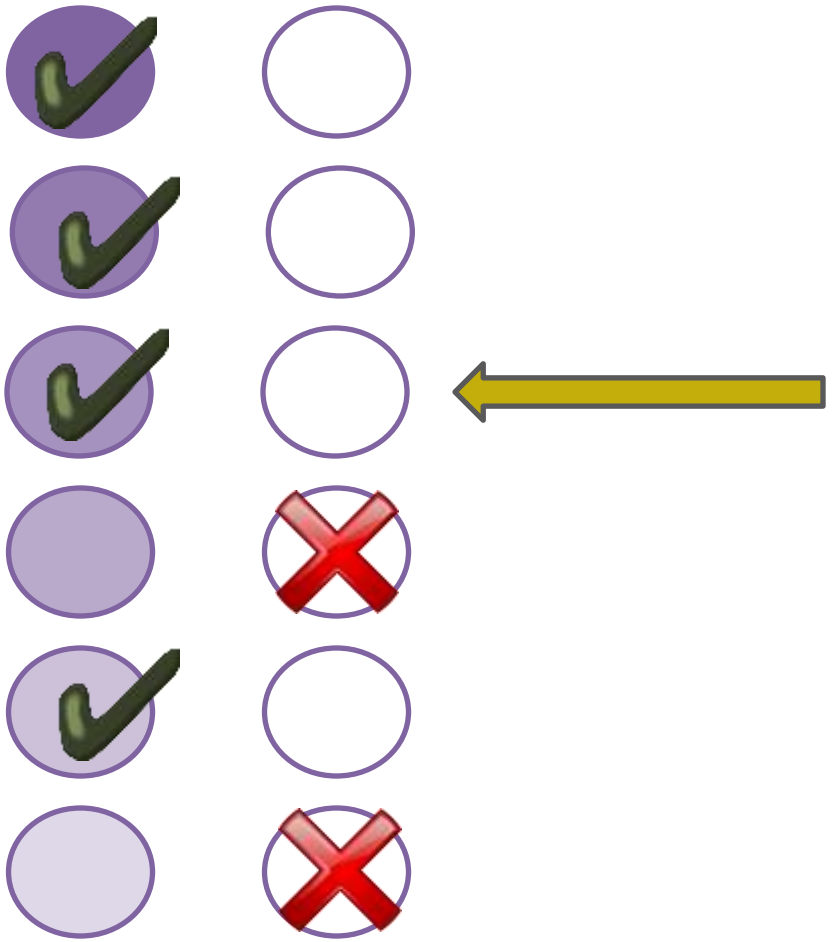


Presentation order was rotated within pairs

Threshold Defined

Individual Threshold =

The lowest concentration that was consistently correct



The Samples

Sweet

Sugar

Salty

Salt

Sour

Citric Acid

Bitter

Caffeine

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The Samples – PTC Sensitivity

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.

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The Cups!

13,584 sample cups!

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RESULTS

Consumers Taste Profiles

Consumer Taste Profiles

Highest Concentration on all four tastes = 2 on Universal Scale

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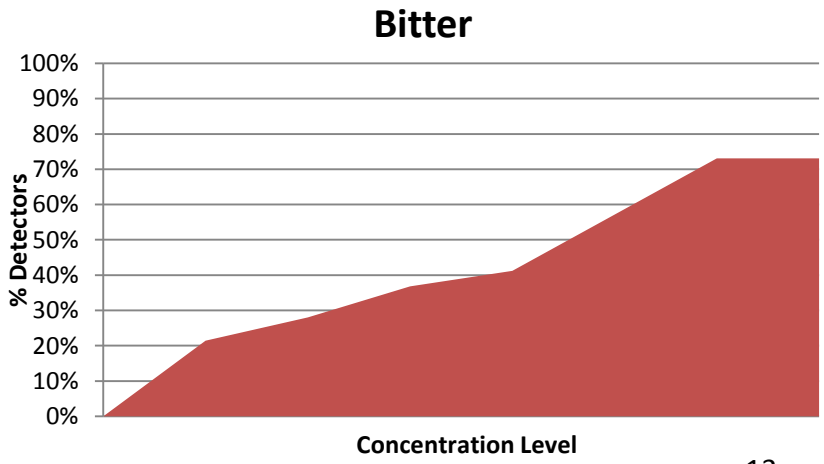
A Note on Bitter

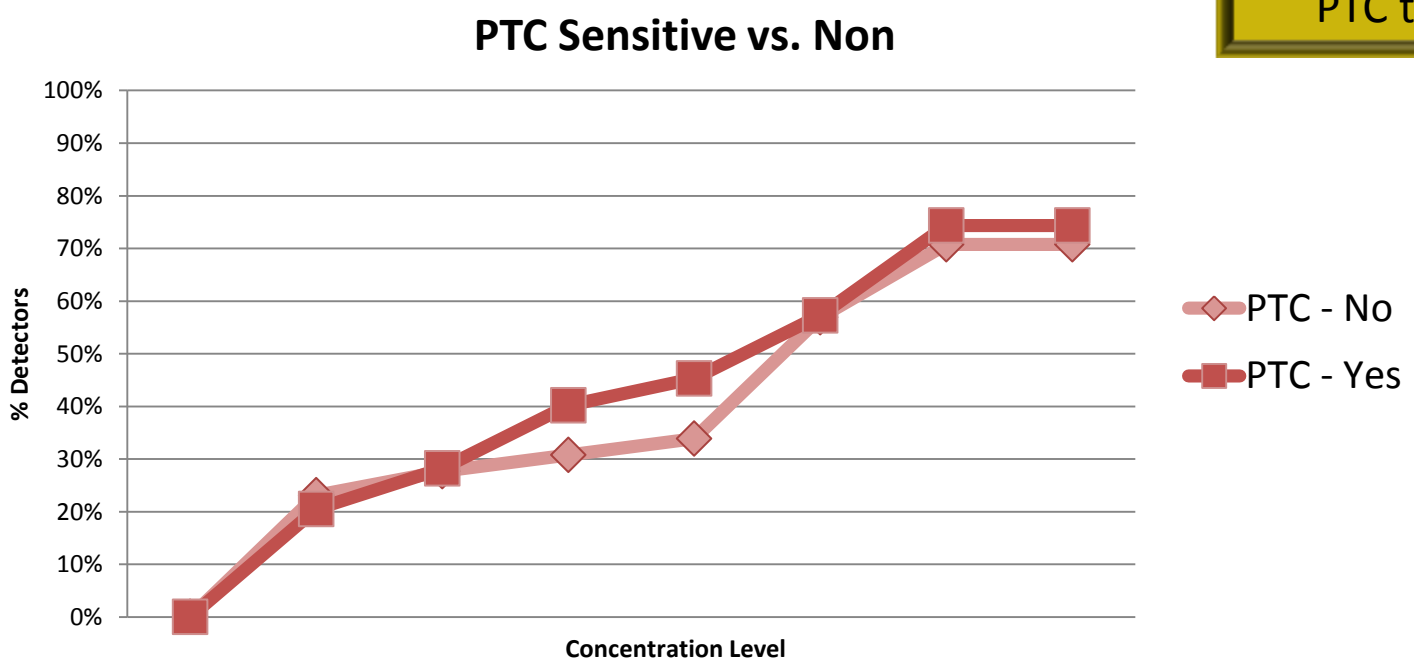
- The bitter samples were harder for the respondents
  - Corresponds with personal experience that bitter is harder for people to identify and understand



A Note on Bitter

- Bitter threshold not significantly higher for PTC sensitive respondents

64% of the respondents were PTC tasters.



Chi-Square p-value: 0.198

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.

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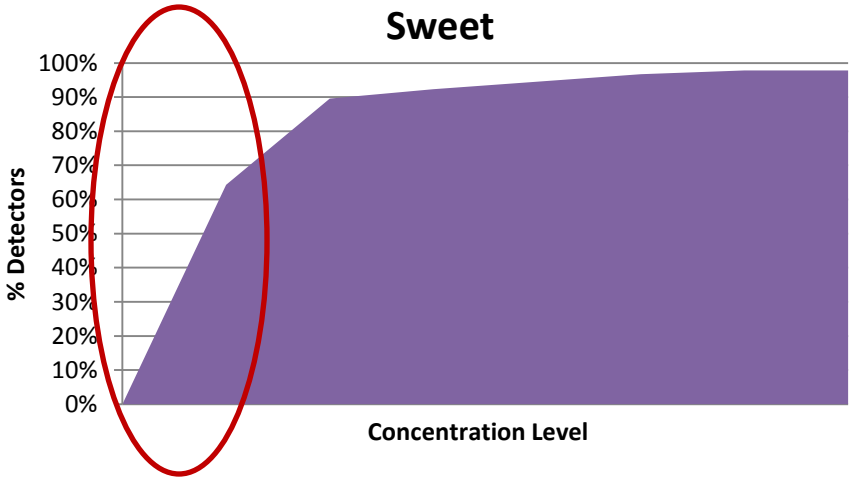
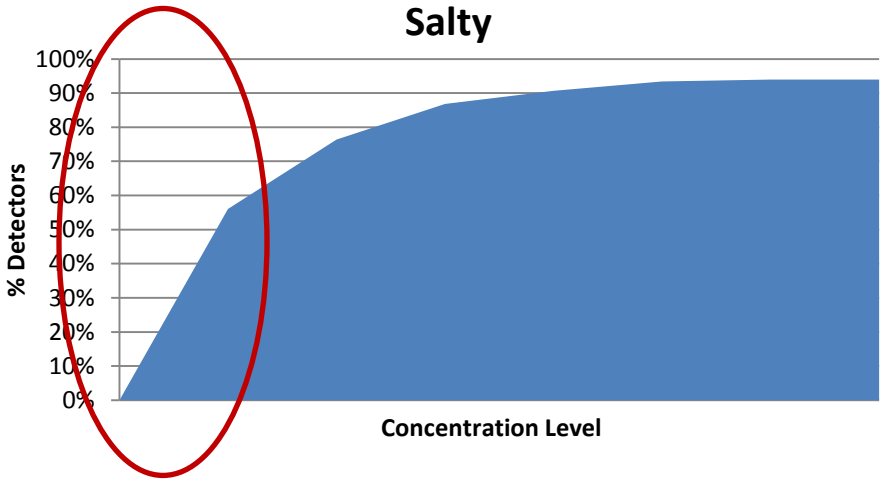
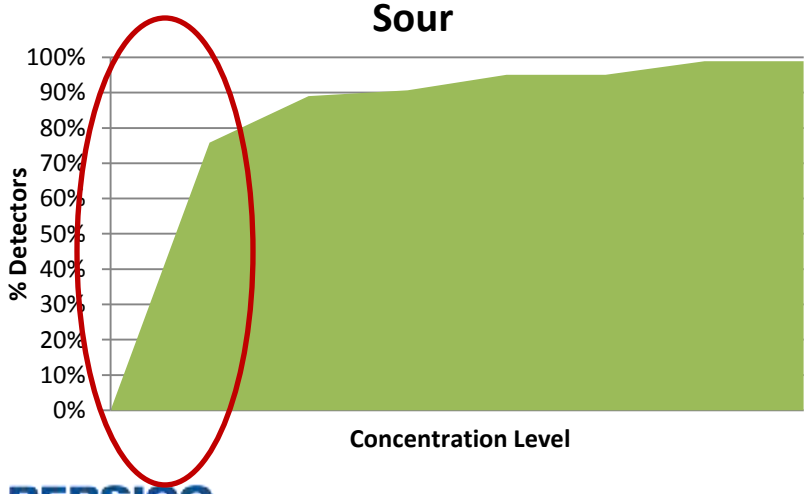
Defining "Acute Taster"







Acute Taster =

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

(Got every single sweet, salty, and sour correct)

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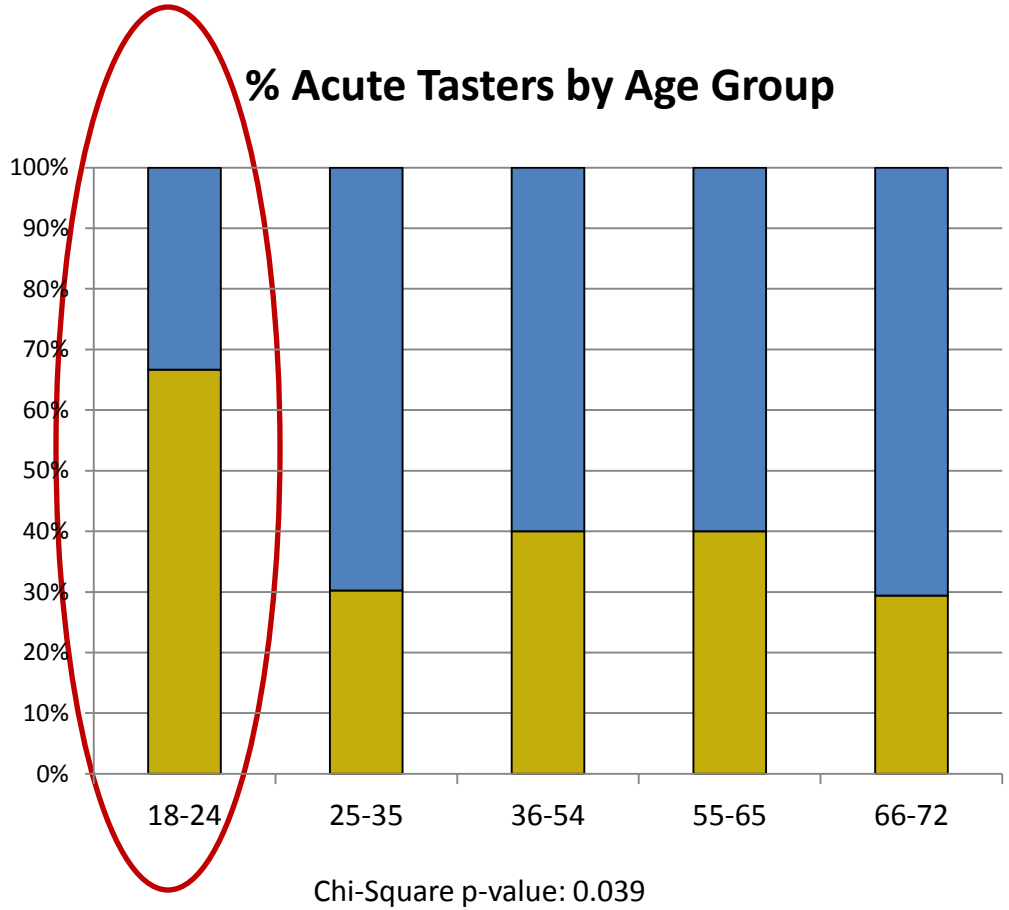
RESULTS

Consumer Demographics

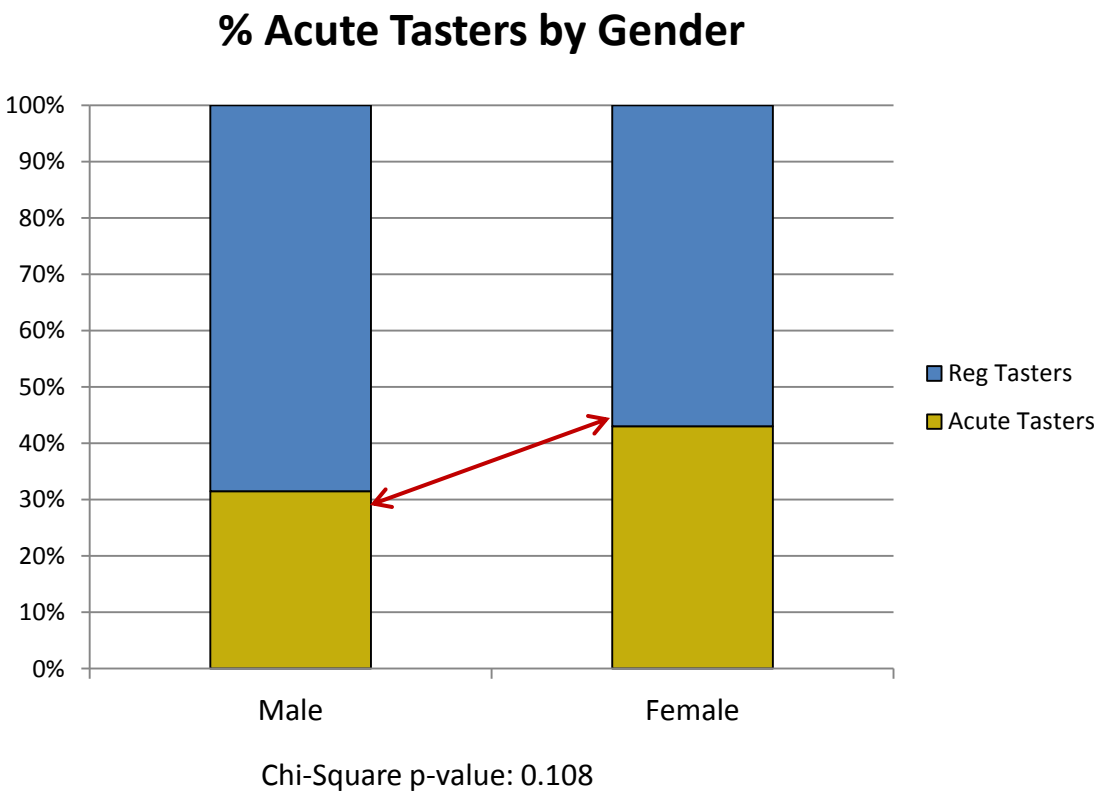
“Acute Taster” Profile - Age



Chi-Square p-value: 0.039

The youngest age group has a very high level of acute tasters

“Acute Taster” Profile - Gender

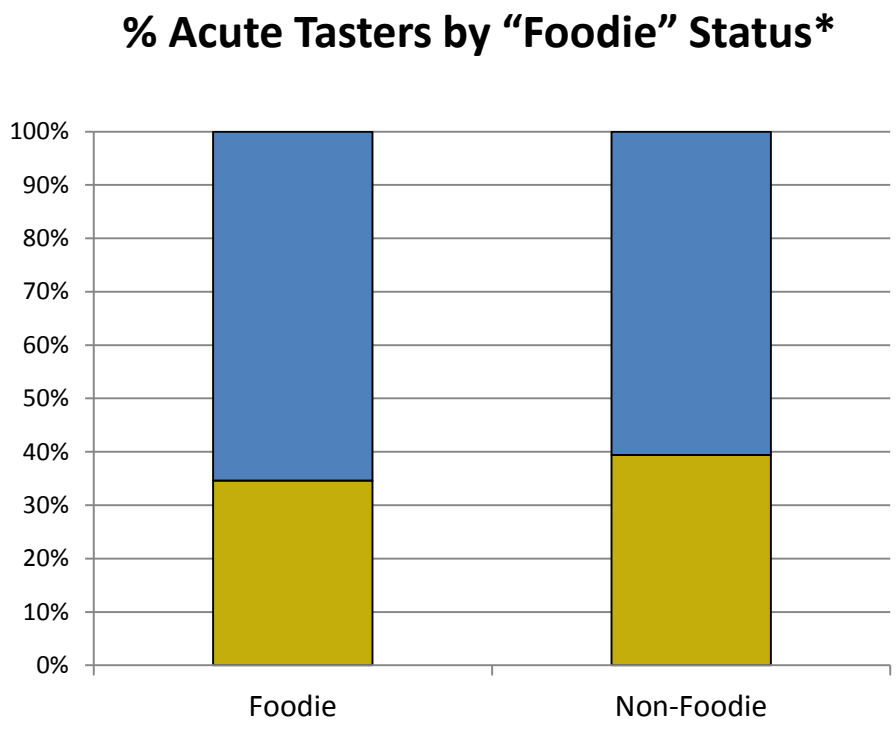


Chi-Square p-value: 0.108

Although there were more female acute tasters, the difference was not significant.

“Acute Taster” Profile – “Foodies”

*”Foodie” Status based on proprietary screening questionnaire that has been in use for 5+ years at Frito Lay



Chi-Square p-value: 0.440

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

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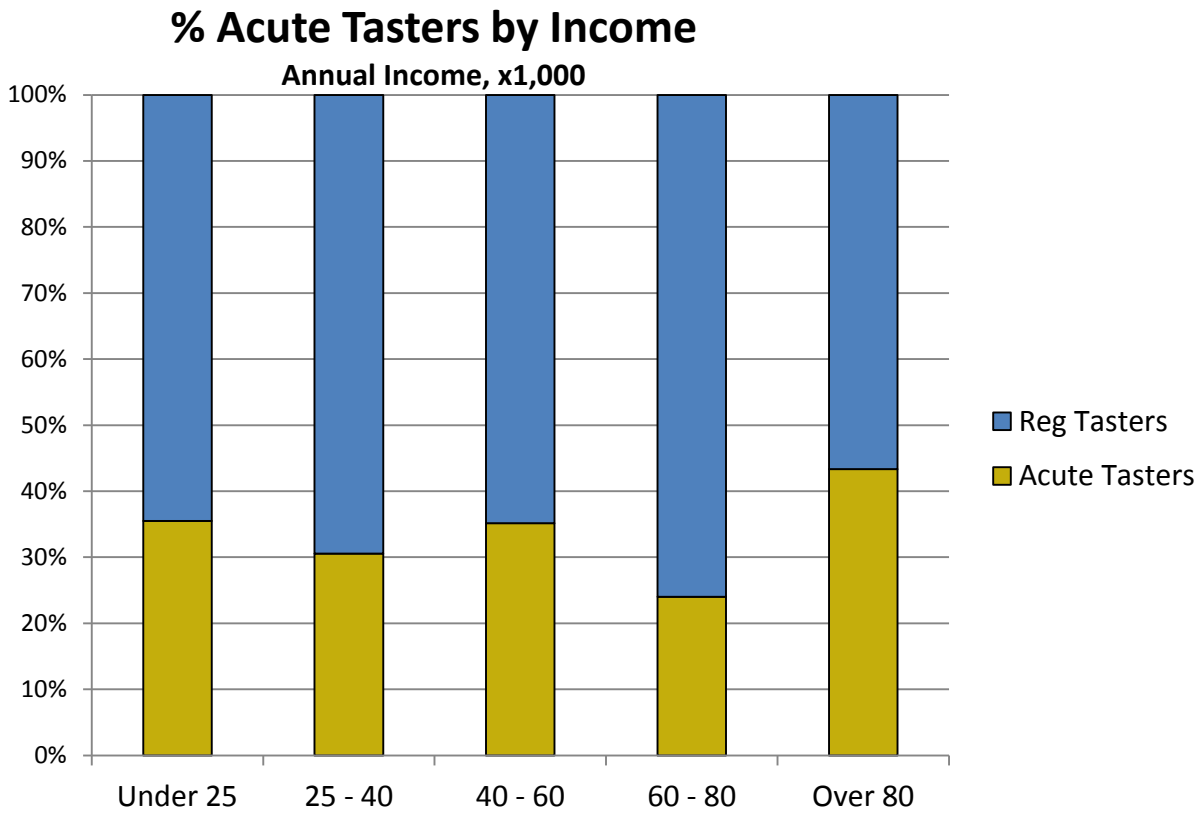
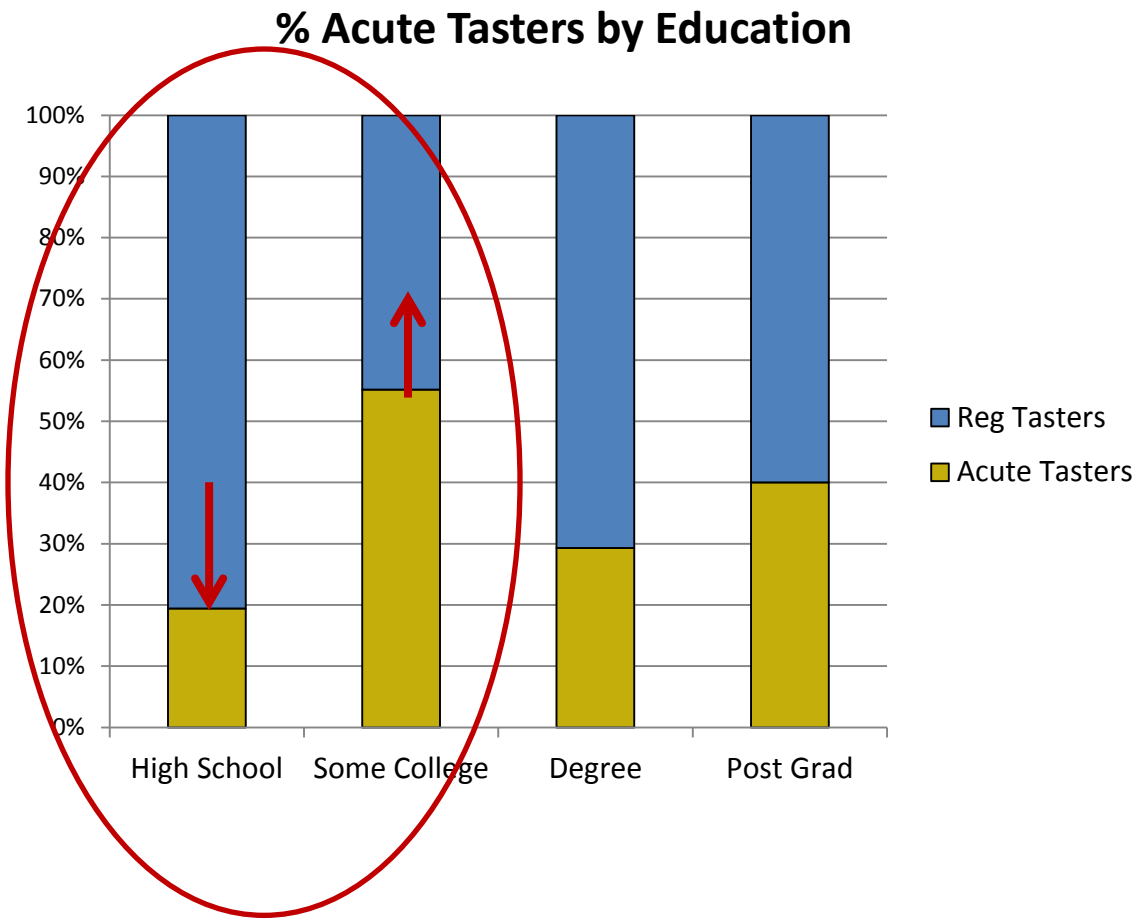
“Acute Taster” Profile - Income



Chi-Square p-value: 0.641

No trend by Income

“Acute Taster” Profile - Education



High School = Fewer Acute Tasters

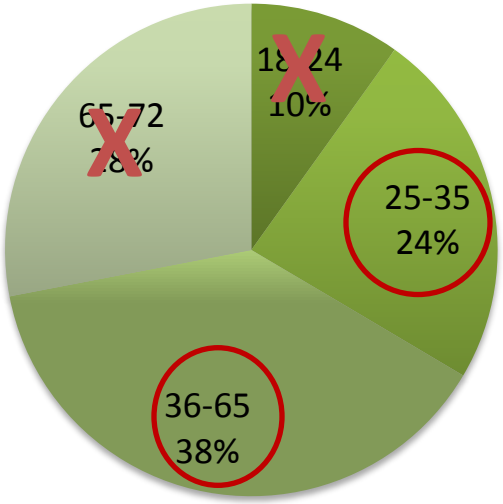
Some College = More Acute Tasters

Chi-Square p-value: 0.002

Product Developers vs. Consumers

Product Developers vs. Consumers

Consumer Respondents by Age

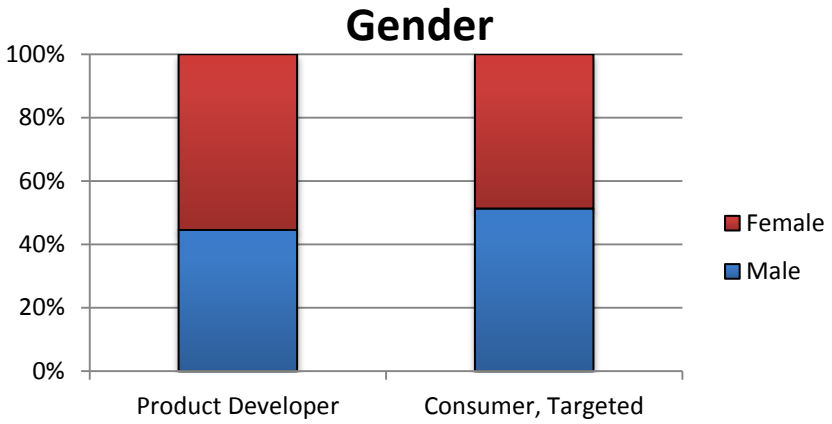


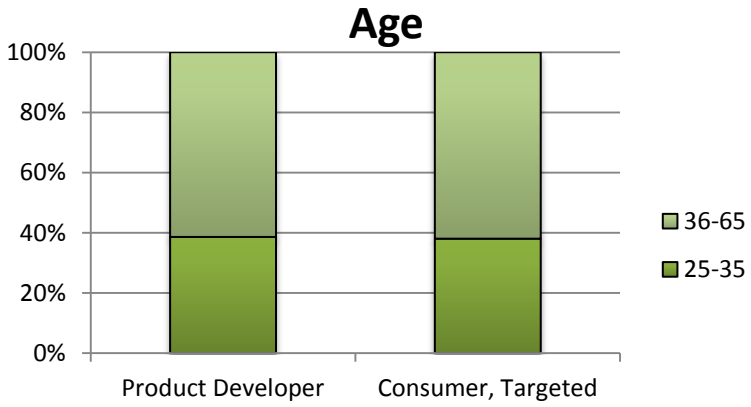
Within R&D group, all respondents were between 25-65.

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.

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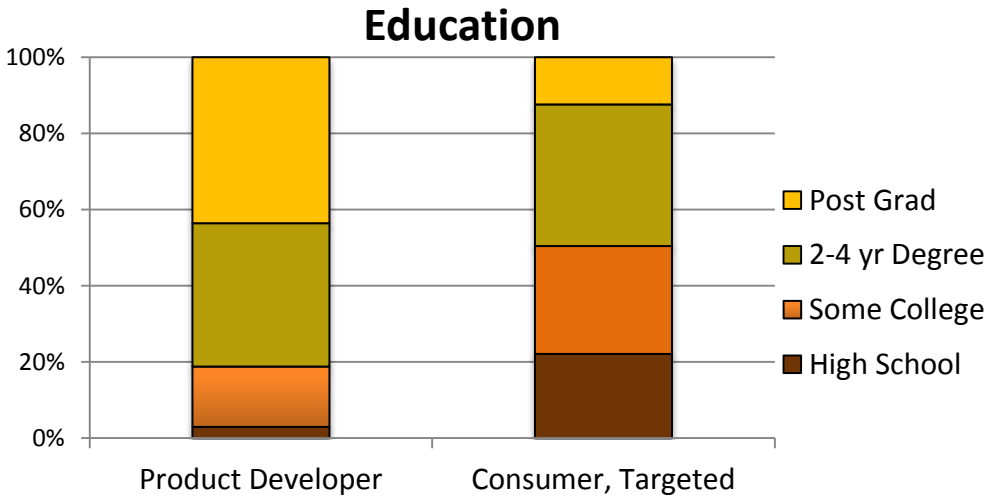
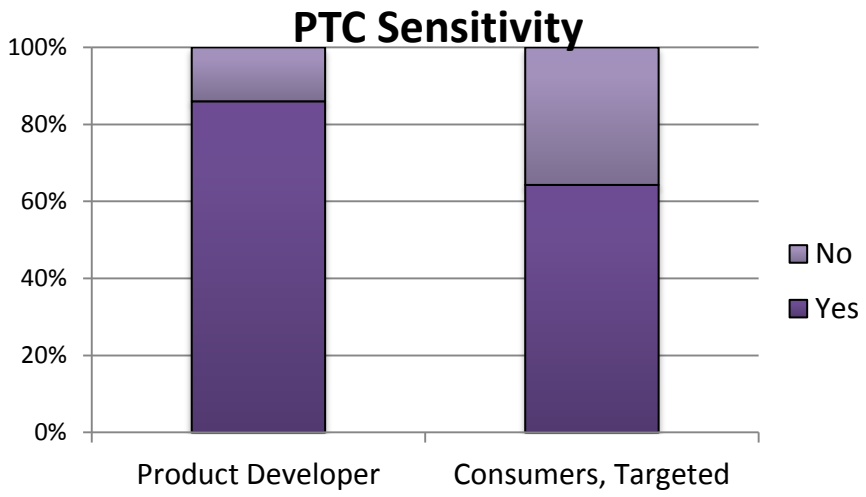
Product Developers vs. Consumers





Differences observed in Education and PTC Sensitivity

Product Developers vs. Consumers

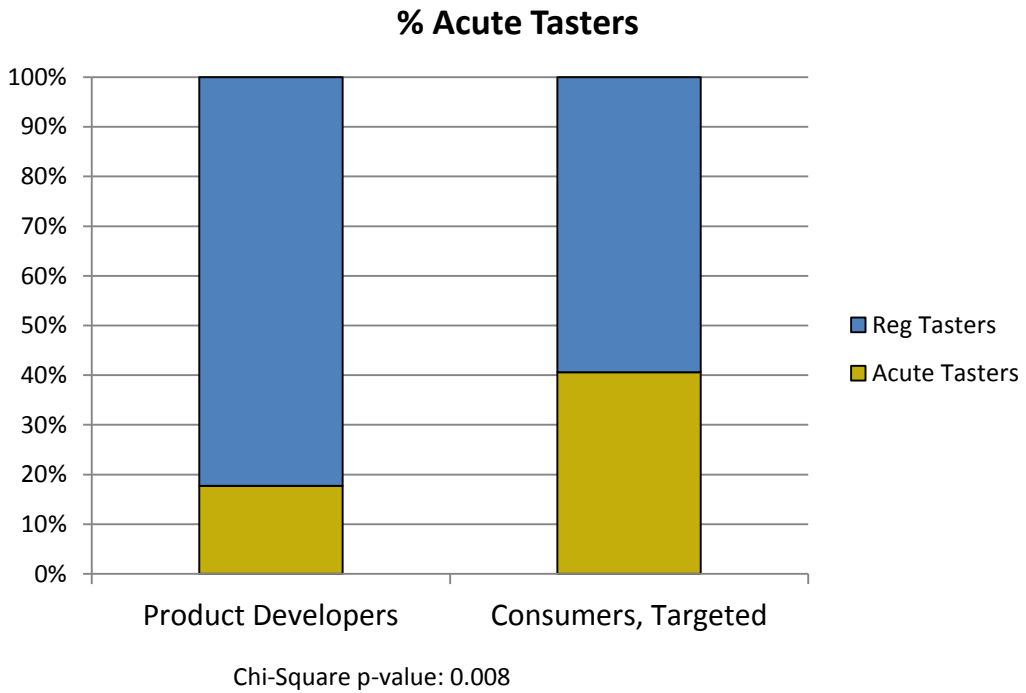
Which do you believe is true?

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

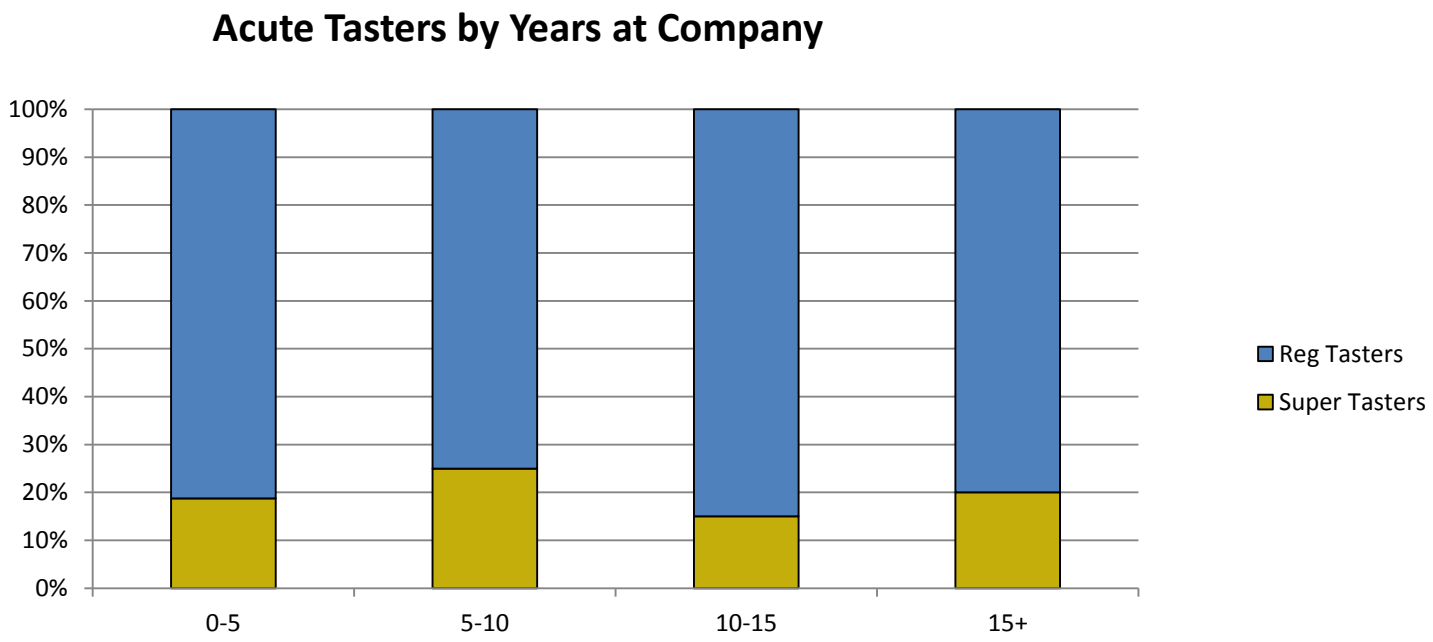


Chi-Square p-value: 0.008

LOWER!

- 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.

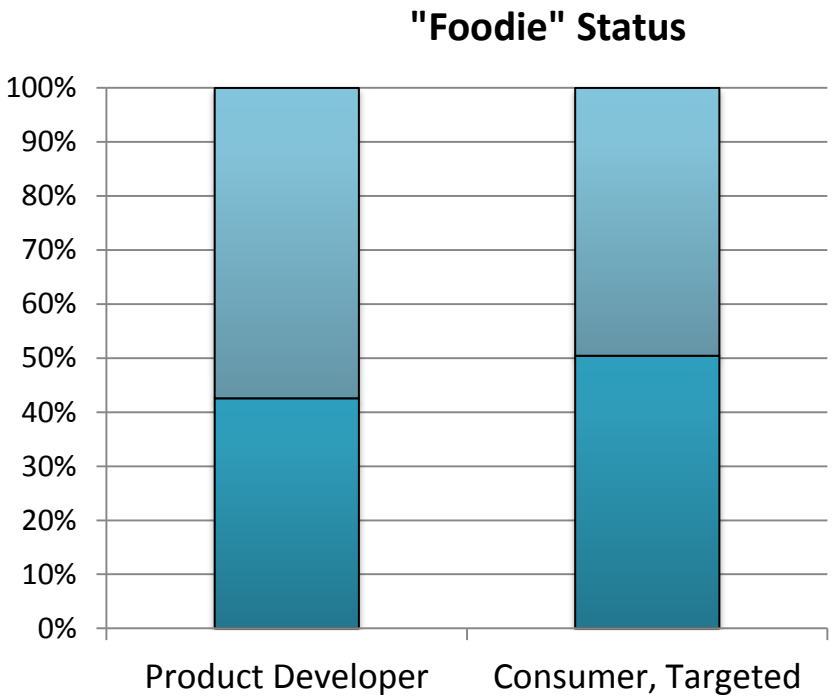
On the Job Training?



Chi-Square p-value: 0.868

No trend observed with tenure with company – thus no "training" effect

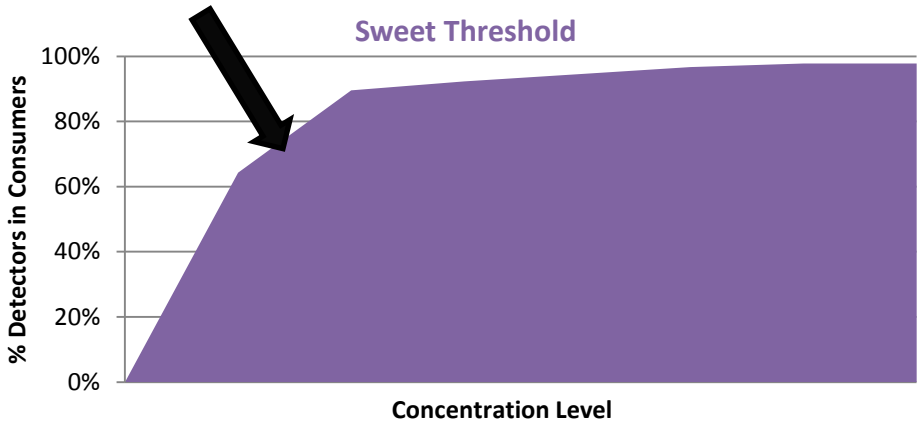
Other Interesting Comparisons



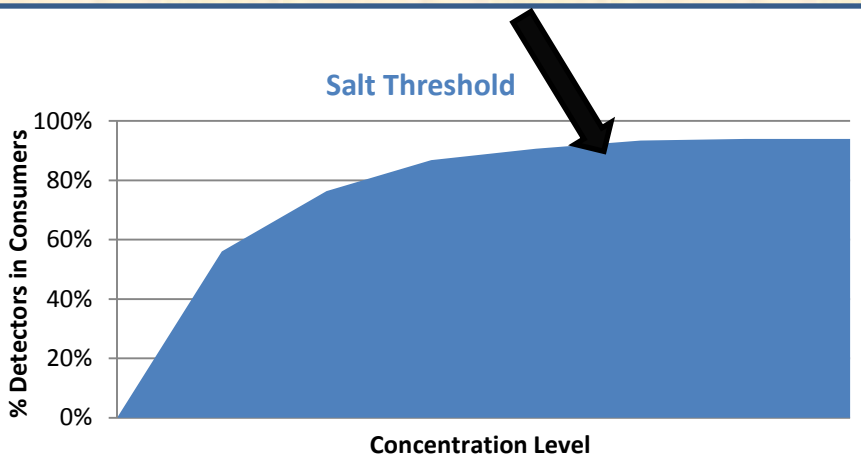
Chi-Square p-value: 0.247

Product Developers were not more likely to be “Foodies” either!

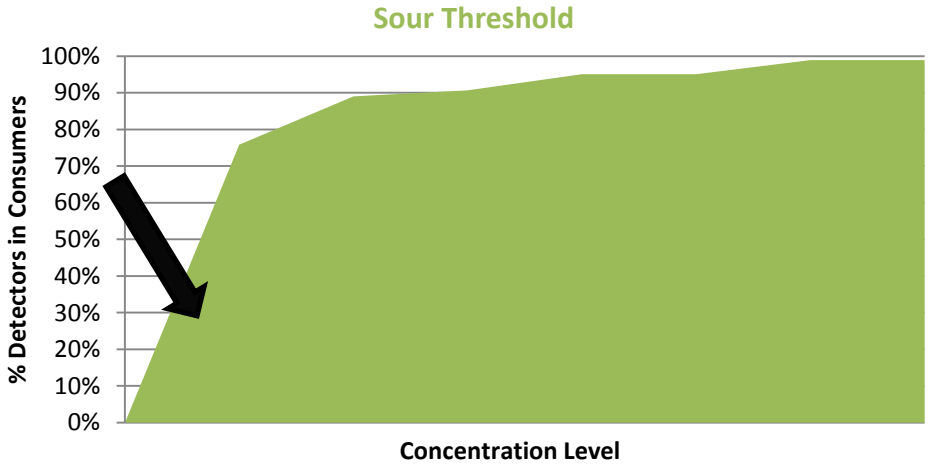
Taste Profile for: Joe Engineer



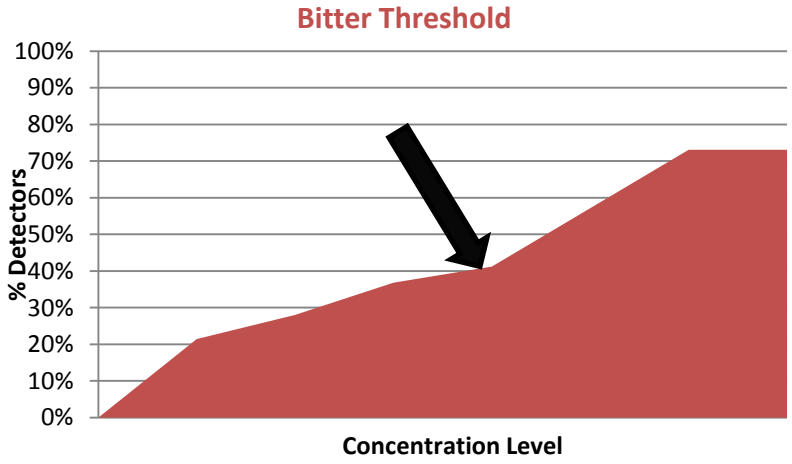
Sensitivity: Average



Sensitivity: Low



Sensitivity: High



Sensitivity: Average

PTC Tasting Gene: Yes

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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.

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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.

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Thank You

Tom Carr – Statistical support

Gwen Williams, RaNea Card, Diane Huck – My Team

P&K – Consumer Testing Partner

P&K research

References

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Thank You!

Questions?