

## **New! 100% Guernsey Milk is Preferred in Consumer Taste Test Research Study**

With all the exciting news about consumers desire to drink more whole milk, seek out A2A2 milk and come back to flavor – the Guernsey Foundation decided to conduct a consumer acceptance study to determine today's consumer preference between Guernsey milk and commercial milk.

The Center for Dairy Research at the University of Wisconsin-Madison was selected to conduct the study, which was completed in September 2017. In summary, the study found milk drinkers were slightly more favorable to 100% Guernsey whole milk. Overall, Guernsey whole milk scored higher on appearance, mouthfeel and overall preference compared to the commercial milk sample. Following are more details on the research methodology, taste testing results and what the findings mean for the future of our Golden Guernsey milk. This study and research were funded by the Guernsey Foundation.

### **Methodology**

The taste test evaluation of Guernsey milk consisted of two steps. First, a descriptive sensory evaluation was conducted by trained taste experts to confirm the sensory attributes for milk. Then, this information was used to conduct a consumer acceptance taste test.

The descriptive sensory evaluation used what is scientifically known as a Profile Attribute Analysis (PAA) method that highlights the differences in key attributes between two types of milk:

- Milk A – Commercial milk (whole and skim milk)
- Milk B – Guernsey milk (whole and skim milk)

In this sensory evaluation test, ten trained panelists identified attributes for both milk products. They established a 15-point attribute scale for the milk samples, which were evaluated “blinded” and in duplicate by the panelists. Then the data was statistically analyzed (Table 1) to see if the samples were significantly different across the 15 different sensory attributes. A special thanks to Kevin Stoltzfus for providing 100% Guernsey milk for the descriptive sensory evaluation.

So, here are the results.

### **Whole Milk**

The results for appearance, body and flavor for whole Guernsey milk did show significant differences compared to commercial whole milk. Overall, Guernsey milk showed a higher degree of golden color and higher opacity. Additionally, Guernsey milk showed significantly higher viscosity scores for both visual and body evaluation of whole milk. Commercial milk showed significantly higher cardboard scores (aromas associated with wet cardboard) compared to Guernsey whole milk.

### **Skim Milk**

The results for appearance, body and flavor for skim milk showed no significant differences. The panel of 15 experts however, did report that Guernsey skim milk was visually thicker than commercial milk. It was decided with this finding to proceed to the Consumer Taste Test using only whole milk.

**Table 1. Sensory scores by ten trained panelists for descriptive analysis of 100% Guernsey and Commercial Milk (numbers in bold are statistically significant).**

Attribute	Guernsey Whole Milk	Commercial Whole Milk	Guernsey Skim Milk	Commercial Skim Milk
<b>Fat Content %</b>	3.54	3.22	0.06	0.00
<b>ESCC (1000 Cell/mL)</b>	48	31	33	65
<b>Appearance</b>				
• Golden Color	4.36	3.64	4.11	3.67
• Opacity	12.20	12.32	9.00	9.25
• Visual Thickness	<b>5.71a</b>	<b>5.22b</b>	2.40	2.05
<b>Body/Texture</b>				
• Viscosity	<b>4.22a</b>	<b>3.74b</b>	2.18	2.15
• Fat feel	3.29	3.24	1.13	1.20
<b>Flavor/Aroma</b>				
• Sweet	<b>1.05a</b>	<b>1.22b</b>	1.02	0.84
• Salty	0.10	0.08	0.18	0.13
• Acid	0.06	0.04	0.03	0.03
• Sweet Aroma	1.35	1.23	0.89	0.89
• Cooked Milk	0.39	0.22	0.00	0.08
• Milk Fat/Lactone	9.42	9.36	6.00	5.94
• Wet Cardboard	<b>0.85b</b>	<b>1.34a</b>	0.00	0.30

### Consumer Acceptance Taste Test

Next, a consumer acceptance taste test was conducted using the Consumer Sensory Lab at the University of Wisconsin-Madison. As mentioned earlier, based on the results gathered instep one with the sensory evaluation, only whole milk samples were chosen for use in the consumer taste test. A independent lab tested the both milk samples for percent fat content and somatic cell counts. (Table 2). A special thank you to Tom Ripley for providing the 100% Guernsey whole milk for this section of the taste test research.

**Table 2: Consumer Taste Test Whole Milk Samples Analyzed for Fat % and SCC**

Description	Fat Content (%)	ESCC (1,000 Cell/mL)
100% Guernsey Whole Milk	5.53	48
Commercial Whole Milk	3.22	31

Eighty random consumers were profiled on simple demographic questions and confirmed that they consumed a glass of milk at least once a year. Each participant was offered both milk samples of whole, chilled milk one right after the other. They were instructed to score their liking of the milk attributes on a 9-point scale, where 1= dislike extremely and 9=like extremely. Additionally, they were asked to

choose their favorite milk sample and then leave a comment explaining their choice. All data was collected electronically and statistically analyzed.

### Profile of Consumer Participants

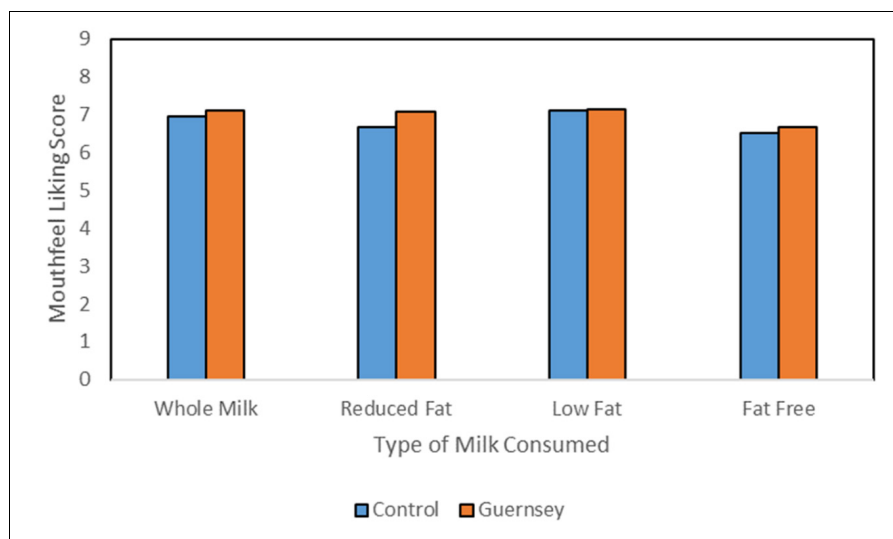
- 83% drank fluid milk at least once a week
- Slightly more males 64% vs. females 36%
- 75% are young adults (under 35 years old)
- 21% drank whole milk, 29% reduced fat milk (2%), 24% low fat (1%), 19% fat free, 7% other
- Ethnicity – 80% Caucasians, 10% Asian, 9% Hispanic or Latino, 1% other

### Liking Scores as a Function of Demographics

Based on the significant difference found in mouthfeel liking, the appearance liking results were further broken down to help AGA members better understand how these factors affect consumers milk drinking decisions.

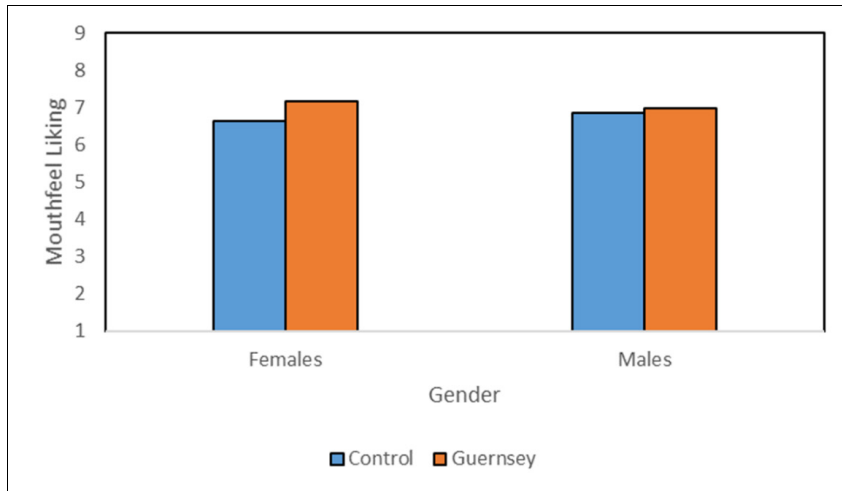
### Type of Milk Consumed

In all cases, regardless of the type of milk the participant normally consumed (whole, reduced fat, low fat, Fat free) Guernsey milk was rated the highest and statistically significant for mouthfeel.



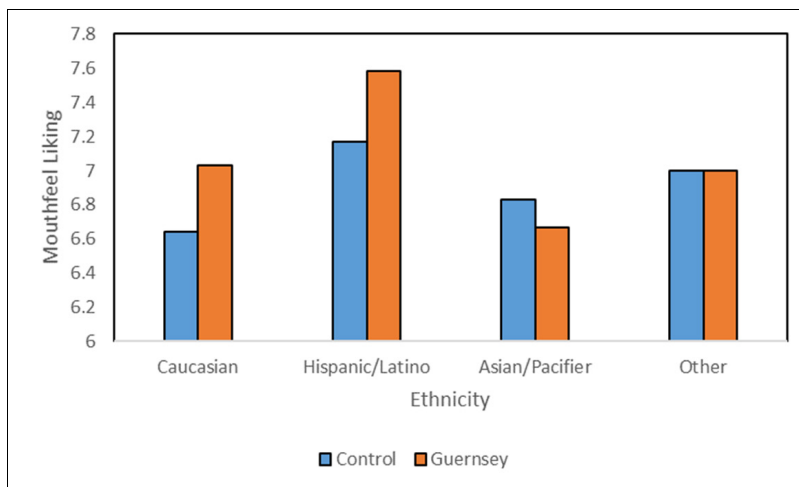
### Gender

Both females and males liked the mouthfeel of Guernsey milk better than commercial milk. However, the trend was more preferred by females.



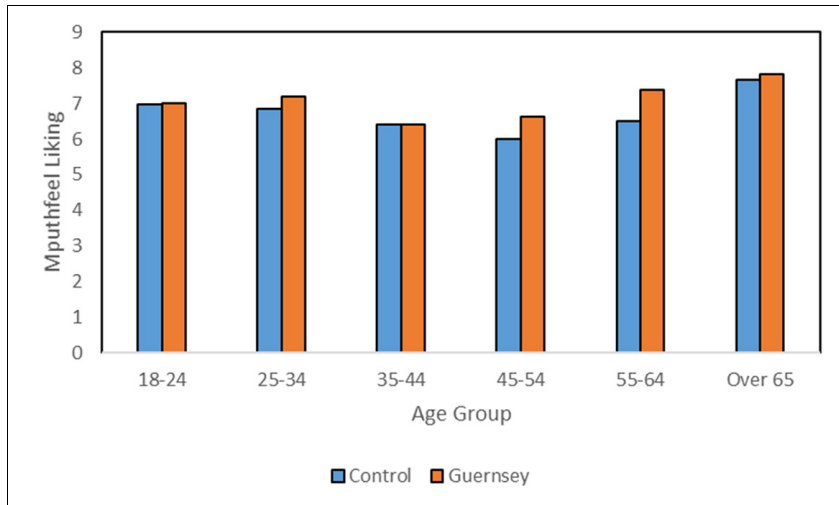
### Ethnicity

Caucasians and Hispanics told us that their mouthfeel for Guernsey milk was much better than commercial milk. The opposite was true for the Asian consumers who rated the commercial milk higher for mouthfeel ( $p > 0.05$ )



### Age Group

Consumers across all age groups rated the mouthfeel of Guernsey milk higher than commercial milk.



### Comments from Consumers that preferred Guernsey Milk.

“I like the taste better”, “this had a better taste profile and did not taste too watery”, “this sample tasted slightly more fresh to me which I enjoyed”, “natural taste”, “creamy mouthfeel, better aftertaste, buttery”, “tasted better, seemed more creamy and less watery”, “more pure, original”, “creamier texture and seemed fresher”, “this has a cleaner aftertaste”, “tastes better, smoother texture and more drinkable”.

### In summary

Do milk drinkers who currently drink whole milk have a higher preference for Guernsey milk? Absolutely! And there’s a growing trend toward more consumption of whole milk.

The Consumer Taste Test bottom line ... more participants, 51% preferred Guernsey milk over commercial milk. That’s GREAT NEWS for Guernsey Milk, the Guernsey Cow and for the future of the AGA members.