

Online Supplementary Material

Consumer willingness to pay for shelf life of high-temperature-short-time (HTST)-pasteurized fluid milk: Implications for smart labeling and food waste reduction

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Appendix A. Additional Tables

Table A1. Estimated coefficients for interaction effects with demographics, behaviors, and perceptions.

Variable	Interaction	Milk type (Organic) ^a	Date label type (QR Code) ^a	Add'l info label (Ecolabel) ^a	Date on label ^a
Age	46 – 55			-0.9802 (0.3583)	
	56 – 65	-1.1624 (0.5004)			
	65 or older	-2.3273 (0.8065)		-2.5538 (0.8843)	
Gender	Male			-0.4173 (0.2012)	
	Other			-2.3659 (0.9089)	
Education	High school				-0.0476 (0.0214)
Household income	Less than \$29,999	-0.6195 (0.3124)			
Purchasing rate	Approximately once a week	-0.6386 (0.2458)			-0.0259 (0.0111)
	Multiple times a week			-1.2285 (0.3786)	
Consumption rate	Multiple times a day			-1.0522 (0.3779)	
	Once a day	-0.7390 (0.3592)			
Purchasing location	Large supermarkets (Harps, Tops, Sprouts, etc.)		-2.5384 (1.1202)		
	Large/national big-box stores (Walmart, Target, K-Mart, etc.)		-2.3406 (1.1195)		
	Small/local grocery stores		-2.3187 (1.1326)		
	Specialty stores (Whole Foods, Trader Joe's, ethnic grocery stores, etc.)	2.5283 (1.2045)	-2.2943 (1.1671)		
	Warehouse club stores (Costco, Sam's Club, BJ's, etc.)	2.4076 (1.1956)			
Lactose free milk consumption	Always	1.7445 (0.8288)			
	Most of the time	2.3428 (0.8032)			0.0819 (0.0399)
Non-dairy milk consumption	Always			1.0691 (0.5135)	
	Never	-1.2087 (0.3830)			
Online buying frequency	About once a day			1.3360 (0.6107)	
	About once a month	-0.8123 (0.3202)			

Variable	Interaction	Milk type (Organic) ^a	Date label type (QR Code) ^a	Add'l info label (Ecolabel) ^a	Date on label ^a
	Several times a day		2.9413 (1.4700)		
Reading food labels frequency	Always			0.6609 (0.3300)	
	Most of the time			0.6871 (0.3047)	
QR code use	Definitely yes			0.6010 (0.3056)	
	Probably not		0.5764 (0.2695)		
	Probably yes			0.7206 (0.2865)	

^aCoefficient (Std. Err.)

Appendix B. Survey Instrument

Start of Block: Screening Questions

Q4.1 Do you or anyone in your household consume dairy milk?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Prefer not to answer (3)
-

Q4.2 In what country do you currently reside?

- ☐ United States (1)
- ☐ Other (2)
- ☐ Prefer not to answer (3)
-

Q4.3 What is your year of birth?

End of Block: Screening Questions

Start of Block: Inconsistent screening validation

Q5.1 “You are ineligible for this study, as you have provided information which is inconsistent with your Prolific prescreening responses. Please return your submission on Prolific by selecting the 'Stop without completing' button.”

End of Block: Inconsistent screening validation

Start of Block: Behaviors

Q6.1 The next few questions will ask about your household's food purchasing habits.

Q6.2 Are you the primary food shopper in your household?

- ☐ Yes (1)
 - ☐ No (2)
 - ☐ Prefer not to answer (3)
-

Q6.3 How often do you purchase dairy milk?

- ☐ Less frequently than every 14 days (1)
 - ☐ Approximately every 10 - 14 days (2)
 - ☐ Approximately once a week (3)
 - ☐ Multiple times a week (4)
 - ☐ Daily (5)
 - ☐ Prefer not to answer (6)
-

Q6.4 How often do you consume dairy milk?

- ☐ Less than once a week (1)
 - ☐ Once a week (2)
 - ☐ Multiple times a week (3)
 - ☐ Once a day (4)
 - ☐ Multiple times a day (5)
 - ☐ Prefer not to answer (6)
-

Q6.5 Where do you most commonly purchase dairy milk?

- ☐ Warehouse club stores (Costco, Sam's Club, BJ's, etc.) (1)
 - ☐ Large/national big-box stores (Walmart, Target, K-Mart, etc.) (2)
 - ☐ Large supermarkets (Harps, Tops, Sprouts, etc.) (3)
 - ☐ Specialty stores (Whole Foods, Trader Joe's, ethnic grocery stores, etc.) (4)
 - ☐ Small/local grocery stores (5)
 - ☐ Convenience stores (6)
 - ☐ Other (please specify): (7) _____
 - ☐ Prefer not to answer (8)
-

Q6.6 Which fat content of dairy milk do you usually purchase?

- ☐ Skim (1)
 - ☐ 1% Low fat milk (2)
 - ☐ 2% Reduced fat milk (3)
 - ☐ Whole milk (4)
 - ☐ Other (please specify): (5) _____
 - ☐ Prefer not to answer (6)
-

Q6.7 What size of dairy milk package do you usually purchase?

- ☐ Quart (1)
 - ☐ Half-gallon (2)
 - ☐ Gallon (3)
 - ☐ More than one gallon (4)
 - ☐ Other (please specify): (5) _____
 - ☐ Prefer not to answer (6)
-

Q6.8 Do you purchase lactose-free dairy milk?

- ☐ Never (1)
 - ☐ Sometimes (2)
 - ☐ About half the time (3)
 - ☐ Most of the time (4)
 - ☐ Always (5)
 - ☐ Prefer not to answer (6)
-

Q6.9 Do you purchase any **non-dairy milk alternatives** (e.g., soy- or nut-based beverages)?

- ☐ Never (1)
 - ☐ Sometimes (2)
 - ☐ About half the time (3)
 - ☐ Most of the time (4)
 - ☐ Always (5)
 - ☐ Prefer not to answer (6)
-

Display This Question:

If Do you purchase any non-dairy milk alternatives (e.g., soy- or nut-based beverages)? != Never

And Do you purchase any non-dairy milk alternatives (e.g., soy- or nut-based beverages)? != Prefer not to answer

Q6.10 Which types of **non-dairy milk alternatives** do you usually purchase (check all that apply)?

☐

Soymilk (1)

☐

Almond milk (2)

☐

Oat milk (3)

☐

Coconut milk (4)

☐

Other nut milk (5)

☐

Other (please specify): (6) _____

☐

Prefer not to answer (7)

Display This Question:

If Do you purchase lactose-free dairy milk? != Never

And Do you purchase lactose-free dairy milk? != Prefer not to answer

Q6.11 Why do you buy **non-dairy milk alternatives** (check all that apply)?

- ☐ Lactose intolerance (1)
- ☐ Milk allergy (2)
- ☐ I don't like the taste of dairy milk (3)
- ☐ Vegan / Vegetarian diet or lifestyle (4)
- ☐ Longer product shelf life (5)
- ☐ Concerns about inflammation (6)
- ☐ Concerns over antibiotics, pesticides, or hormones (7)
- ☐ Animal welfare (8)
- ☐ Other (please specify): (9) _____
- ☐ Prefer not to answer (10)

End of Block: Behaviors

Start of Block: Intro and explanations

Q7.1 In this section, we would like you to imagine that you are in your favorite grocery store and are looking to purchase **dairy milk**. Please, compare options 1, 2, and 3 on each page, and choose which one you would most prefer to purchase. Compare only the purchase options presented on each page. Do not compare these purchase options to purchase options presented on other pages of the survey.

Please assume that any **product characteristics not explicitly listed on the page are identical across all three purchase options**. For example, please **assume that the type of container, package size, and fat content are the same across all three options**.

Q7.2 **Definitions:** Please, read the following definitions before you proceed:

End of Block: Intro and explanations

Start of Block: Information treatment - Food waste messaging

Display This Question:

If Group = Treatment

Q8.1

End of Block: Information treatment - Food waste messaging

Start of Block: ConjointBlock

C1 (1/4) Assume that you are going to buy a gallon bottle of milk. If you could only choose from the following three options, which one would you choose?

Milk Option 2

☐ (1)

☐ (2)

☐ (3)

☐ (4)

C2 (2/4) Assume that you are going to buy a gallon bottle of milk. If you could only choose from the following three options, which one would you choose?

Milk Option 2

☐ (1)

☐ (2)

☐ (3)

☐ (4)

C3 (3/4) Assume that you are going to buy a gallon bottle of milk. If you could only choose from the following three options, which one would you choose?

Milk Option 2

☐ (1)

☐ (2)

☐ (3)

☐ (4)

C4 (4/4) Assume that you are going to buy a gallon bottle of milk. If you could only choose from the following three options, which one would you choose?

Milk Option 2

☐ (1)

☐ (2)

☐ (3)

☐ (4)

End of Block: ConjointBlock

Start of Block: ConjointBlock1

Q10.1 In answering the previous four questions about hypothetical food purchase decisions, how important were each of the following attributes in your choice?

Please, drag and drop the options to place them in order of importance, with 1 being the most important and 5 being the least important.

- _____ Milk type (1)
- _____ Date label type (2)
- _____ Additional information label (3)
- _____ Date on label (4)
- _____ Price (5)

End of Block: ConjointBlock1

Start of Block: Online buying behavior and QR Code use

Q11.1 The next set of questions will address your household's consumption habits and perceptions.

Q11.2 On average, how often do you purchase products or services online?

- ☐ Less than once per month (1)
- ☐ About once a month (2)
- ☐ A few times a month (3)
- ☐ A few times a week (4)
- ☐ About once a day (5)
- ☐ Several times a day (6)
- ☐ Prefer not to answer (7)

Q11.3 How often have you read the information from a food label before a purchase (either online or offline) in the past month?

Definitions: A food label includes but is not limited to dates, nutritional and allergen facts, ingredients list, name of the food, amount of the product, traceability, etc.

- ☐ Never (1)
 - ☐ Sometimes (2)
 - ☐ About half the time (3)
 - ☐ Most of the time (4)
 - ☐ Always (5)
 - ☐ Prefer not to answer (6)
-

Q11.4 Have you ever scanned a QR code within food products?

- ☐ Definitely yes (1)
- ☐ Probably yes (2)
- ☐ Might or might not (3)
- ☐ Probably not (4)
- ☐ Definitely not (5)
- ☐ Prefer not to answer (6)

End of Block: Online buying behavior and QR Code use

Start of Block: Perceptions

Q12.1 How familiar are you with food waste issues related to fluid dairy milk?

- ☐ Not familiar at all (1)
- ☐ Slightly familiar (2)
- ☐ Moderately familiar (3)
- ☐ Very familiar (4)
- ☐ Extremely familiar (5)
- ☐ Prefer not to answer (6)

Q12.2 To what extent do you agree with the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)	Prefer not to answer (6)
I understand the difference between pasteurized and Ultra-Pasteurized (UP) milk. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I discard milk when it passes the date printed on the container. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I discard milk on the date printed on the container. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I usually discard milk before I am able to finish the whole container. (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I smell milk before discarding it. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I taste milk before discarding it. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand the printed date on milk indicates quality rather than food safety. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand the differences between " <i>sell by</i> ," " <i>best if used by</i> ," and " <i>use by</i> " when printed on a container of milk. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I understand food waste is a significant issue in the U.S. (8)

☐☐☐☐☐☐☐

I feel bad when food is wasted. (9)

☐☐☐☐☐☐☐

I feel it is wrong/morally reprehensible to waste food. (10)

☐☐☐☐☐☐☐

I consider food waste when I make food choices. (11)

☐☐☐☐☐☐☐

I like to better handle food to help reduce food waste. (12)

☐☐☐☐☐☐☐

I like sharing my social contributions on social media. (13)

☐☐☐☐☐☐☐

I like being part of online/in-person networks that promote sustainability awareness (i.e., environment, social, food waste). (14)

☐☐☐☐☐☐☐

End of Block: Perceptions

Start of Block: Demographic information

Q13.1 The next few questions will ask about your household characteristics.

Q13.2 What is your age?

- ☐ 25 or younger (1)
 - ☐ 26-35 (2)
 - ☐ 36-45 (3)
 - ☐ 46-55 (4)
 - ☐ 56-65 (5)
 - ☐ 65 or older (6)
 - ☐ Prefer not to answer (7)
-

Q13.3 What is your gender?

- ☐ Male (1)
 - ☐ Female (2)
 - ☐ Other (3)
 - ☐ Prefer not to answer (4)
-

Q13.4 Which of the following best describes you? Multiple answers may be chosen.

☐

White (1)

☐

Middle Eastern or North African (7)

☐

Black or African American (2)

☐

American Indian or Alaska Native (3)

☐

Asian (including South Asian) (4)

☐

Native Hawaiian or Pacific Islander (5)

☐

Hispanic/Latino (6)

☐

Other (please specify): (9) _____

☐

Prefer not to answer (-1)

Q13.5 What is the highest level of school you have completed or the highest degree you have received?

- ☐ Less than high school degree (1)
 - ☐ High school graduate (high school diploma or equivalent including GED) (2)
 - ☐ Some college but no degree (3)
 - ☐ Associate degree in college (2-year) (4)
 - ☐ Bachelor's degree in college (4-year) (5)
 - ☐ Master's degree (6)
 - ☐ Doctoral degree (7)
 - ☐ Professional degree (JD, MD) (8)
 - ☐ Prefer not to answer (9)
-

Q13.6 Information about income is very important to understand. Would you please give your best guess? Please indicate the answer that includes your entire household income in (previous year) before taxes.

- ☐ Less than \$10,000 (1)
 - ☐ \$10,000 to \$19,999 (2)
 - ☐ \$20,000 to \$29,999 (3)
 - ☐ \$30,000 to \$39,999 (4)
 - ☐ \$40,000 to \$49,999 (5)
 - ☐ \$50,000 to \$59,999 (6)
 - ☐ \$60,000 to \$69,999 (7)
 - ☐ \$70,000 to \$79,999 (8)
 - ☐ \$80,000 to \$89,999 (9)
 - ☐ \$90,000 to \$99,999 (10)
 - ☐ \$100,000 to \$149,999 (11)
 - ☐ \$150,000 or more (12)
 - ☐ Prefer not to answer (13)
-

Q13.7 What is your marital status?

- ☐ Married (1)
 - ☐ Widowed (2)
 - ☐ Divorced (3)
 - ☐ Separated (4)
 - ☐ Never Married (5)
 - ☐ Prefer not to answer (6)
-

Q13.8 Do you have children under 18 years old living in your household?

- ☐ Yes (1)
 - ☐ No (0)
 - ☐ Prefer not to answer (-1)
-

Q13.9 How many people are living or staying in your household?

INCLUDE everyone who is living or staying here for more than 2 months. INCLUDE yourself if you are living here for more than 2 months. INCLUDE anyone else staying here who does not have another place to stay, even if

they are here for 2 months or less. DO NOT INCLUDE anyone who is living somewhere else for more than 2 months, such as a college student living away or someone in the Armed Forces on deployment.

- ☐ 1 (1)
 - ☐ 2 (2)
 - ☐ 3 (3)
 - ☐ 4 (4)
 - ☐ 5 (5)
 - ☐ 6 (6)
 - ☐ More than 6 (7)
 - ☐ Prefer not to answer (8)
-

Q13.10 In which state do you currently reside?

▼ Alabama (1) ... Prefer not to answer (54)

End of Block: Demographic information
