Using a Randomized Choice Experiment to Test Willingness to Pay for Multiple Differentiated Products

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Abstract

The purpose of this paper is to evaluate the importance of different attributes of three major product categories: fruits, vegetables and ornamental plants, in order to understand the relative effect of these attributes on consumer's choice. Using an online survey we implemented a choice based conjoint experiment. Respondents were asked to randomly evaluate two of the ten products being tested in the survey. A mixed logit model was used to analyze the data and determine willingness to pay for each product attribute. We further tested for the impact of purchase behavior and any randomization effect. Results for most of the products we analyzed demonstrate that consumers value locally grown products more than national products. Furthermore, results show that consumers tend to pay more money for farm and organic produce, but less for the latter one if consumers do not have prior experience buying organic. We also find a randomization effect that should be accounted for when evaluating multiple products in a survey.

Key words: Willingness to Pay, Choice Based Conjoint Analysis, Specialty Crops

JEL classification: Q13

The difference in product attributes represents an important factor for consumers when making a purchase decision. Research has shown that a greater variety of options can cater to a wider range of tastes and preferences (Lancaster 1990). That is, with different product attributes, the quality of the product, as perceived by consumers, increases. An important product category is food, where quality has recently become a major concern for the majority of consumers. The media's increased emphasis on nutritional information and healthiness of different food products has potentially shifted consumer's tastes and preferences. In this context, consumer demand for niche products such as organic and locally grown food has increased enormously (Moser et al 2011). For instance, many consumers see locally grown food as a strong criterion for product freshness and good taste. Onozaka et al. (2011) found a strong positive preference for locally grown products relative to domestically grown ones and strong negative preference away from imported products. Their estimation shows that consumers are willing to pay $9-15\%$ of the original price more for local produce, whereas for imported products they tend to pay $10-32\%$ less. In parallel, Darby et al. (2005) estimated willingness to pay (WTP) for fresh strawberries. Their results suggested a lack of consumers awareness of product labeling, and an independence of local product' demand from other attributes.

For features preference, providing consumers with more information on the product's attributes does not necessarily imply a direct effect on their preference ordering. Other emotional triggers may drive the purchase decision and can be hard for the researcher to consider. Lusk et al. (2008) analyzed consumer preferences for beef attributes using an incentive compatible conjoint ranking mechanism. Their study revealed how people's rankings of ground beef products were not affected by the mechanism or by information about pasture-raised beef. This lack of sensitivity may be explained by people's irrational behavior when dealing with low-valued goods.

In this study, we investigate how consumers value different levels of product's attributes when making their purchase decision. More specifically we evaluate whether there are

WTP differences for locally labeled products sold at varying retail outlets, similar to Shi, House and Gao (2013). We also examine the role of purchasing experience on WTP. However, our study differs from other studies in that we compare a wide range of products (10 total), including fruits, vegetables and plants. Each respondent randomly evaluated two of the ten products. We test the robustness of the randomization by verifying the presence or absence of randomization effects. If randomization effects are found, then evaluating two products in the same survey may not be viable. However, if no randomization effect is found then this approach can be used to increase the number of products evaluated in a survey.

Our results indicate that only using local in a generic sense may be overestimating the price premiums for locally labeled for certain store types, similar to results found by Moser et al. (2011). Further, we find that differences are present across consumers with different purchasing experience. Finally, and perhaps most importantly, we find the potential for randomization effects when randomizing the order of multiple products within a single survey.

Conceptual Framework

Choice based conjoint analysis (CBA) is one of the most widely used marketing research techniques for determining consumer response towards different product attributes. The objective of CBA is to simulate an actual shopping experience, based on altering a set of product attributes to create different profiles that are shown to respondents. Respondents are asked to make a decision amongst a set of profiles in order to determine what combination of attributes is most valuable for each respondent choice. Therefore, the implicit valuation of these product attributes is the key to measure profitability of product designs. CBA was originally introduced to marketing research by Green and Rao (1971). The authors applied this technique to quantifying judgmental data and showed how this technique can be generalized to deal with more than three independent variables and more than a sin-

gle assessor. They forecasted that various types of marketing planning and choice behavior models might benefit from the utilization of conjoint models. Later on, CBA was adopted by Wittink and Cattin (1989) to elicit stated preferences towards commercial applications. They compared various characteristics of various commercial projects to find a high use of ranking conjoint analysis compared to rating conjoint analysis where ranking method is easier for respondents to follow.

In the last two decades, CBA continued to grow in rapid pace to be implemented in many areas of empirical research such as industrial marketing and agricultural economics. In this context, by mimicking a real shopping situation CBA allows researchers to identify the utility derived from each profile, thereby, measure the welfare effects on respondents. Even with the hypothetical nature of the mechanism, the marginal WTPs from CBA have been found to not be statistically different from actual payment settings (Lusk and Schroeder 2004).

The widespread use of CBA does not prevent its shortcomings. CBA studies usually focus on a single product instead of gaining perspective on other products with the same concerns. When multiple products need to be examined in a cost effective manner, adding multiple products to an experiment has some appeal. However, a central issue of adding more choice sets is that when facing a large amount of choices sets respondents can become fatigued resulting in inaccurate estimates (Adamowicz et al. 1998; Savage and Waldman 2008). Smaller designs and randomization within choice sets can potentially reduce respondent fatigue. As noted by Moskowitz, Gofman, and Beckley (2006), larger number of profiles have been used in other disciplines. Moreover, CBA studies generally utilize generic attributes (e.g. local is not in home state as a proxy for a non-local product) in order to formulate a smaller design. For this paper, we contribute to the choice based literature by demonstrating a randomized CBA experiment with ten products, whereby each respondent is shown two of the ten products. Further, we implement the experiment by

emulating real product characteristics for each product instead of tying each product to a one size fits all design.

Data and Methodology

In this paper, data were collected via a web-based survey. 1770[1] respondents within Connecticut with diverse demographic characteristics were sampled. Respondents were obtained from the database of Global Market Insight, Inc. Respondents were emailed and invitation to participate in the survey. Those respondents agreeing to participate were directly to the survey. The survey instruments for this study were evaluated and approved by the Connecticut (CT) Internal Review Board. Table 1 presents some basic demographic characteristics of the sample used in this analysis.Based on the sample characteristics, our sample had 88% Caucasian respondents which is slightly more than the 82% reported in the census for CT. Further the average income for the sample was $87,704. For comparison to the CT population, the median income was $75,000 which is slightly larger than the CT median income of $69,519. With respect to age, the sample median age was 53 compared to the median age for working force eligible adults at 43. Finally, we oversampled females given they generally noted to be the primary shopper in the household. Given variances are not provided for the census numbers above, we cannot test whether our sample is statistically different from the CT population. However, our sample appears to be a little older with a little more household income than the average CT resident.

Choice Experiment Design

Each respondent was randomly assigned two of the ten products subject (apples, sweet corn, honey, maple syrup, tomatoes, micro greens, impatiens/begonias, azaleas, strawberries, and Christmas trees) in the study. The ten products were chosen by the Connecticut (CT) Department of Agriculture given their importance to the CT agricultural industry, notably their potential impact for locally grown sales.

We customized the design of each product so that the attributes and levels were equivalent to what is available on the market. The attributes and corresponding levels for each product was identified in consultation with the CT Department of Agriculture and members of industry. In addition, prices were chosen via consultation with the above listed groups as well as through surveying of prices at retail locations throughout the CT.

We utilized local labeling in a store context to identify differences between local labeling at a store level. For instance, apple attributes (levels) were price/lb ($1.39, $2.29, $3.19, $4.29, $5.19, $5.99), variety (Honey Crisp, Macoun, McIntosh), local (CT in farmer's market, CT in supermarket, NY in supermarket, Washington in supermarket, China in supermarket), organic (yes, no), while maple syrup attributes (levels) were price/pint ($11.59, $11.99, $12.79, $13.59, $14.39, $15.19, $15.99), location (farmer's market, supermarket), local (CT, VT, NY, ME, Canada, no label), organic (yes, no).

As can be seen by the above examples, apples location and local labeling was combined given non-CT apples are not sold at farmer's markets, while non-CT maple syrup is sold at farmer's markets and supermarkets. Table 2 summarizes the attributes of each product used in the choice experiment with their corresponding levels.

In designing the final number of choice sets for each product, using D-optimality criterion we created unique choice profiles (Kessels et al. 2011). Using Deficiency criterion, which compares design efficiency with an orthogonal balanced design, we narrowed the design to the chosen design (Kuhfeld 2010). The final number of choice sets for each of the ten products was eight to twelve[2].

Figures 1 and 2 represent examples of a choice sets among eight different choice sets taken from the survey for apples and maple syrup products respectively, where in each choice set there are three different alternatives as well as a no purchase option. In the instructions for evaluating the choice sets, respondents were reminded that they have a budget constraint in real life and they should make realistic decisions as they would at when shopping for the product shown.

The Model

The estimation was conducted using a mixed-effects logistic regression. This is a model that is widely used given its flexibility for analyzing stated preference data. It obviates the three limitations of standard logit by allowing for random taste variation, unrestricted substitution patterns, and correlation in unobserved factors over time (Train 2003).

Following McFadden and Train (2000), the expected utilities are expressed in terms of product attributes and attributes of the individuals. The starting point is a consumer i facing J alternatives for each product r. The consumer chooses the alternative that maximizes his utility given by

$$(1) \quad \boldsymbol{U}_{ij} = \boldsymbol{X}_{ij}\boldsymbol{\beta}_i + \boldsymbol{\varepsilon}_{ij}$$

where $\boldsymbol{X}_{ij}$ represents different attributes with their corresponding levels associated to alternative j for each product r. $\boldsymbol{\varepsilon}_{ij}$ represents the distribution of consumer preferences about the unobserved product characteristics, and is assumed $i.i.d.$ Gumbel with a density $f(\boldsymbol{\varepsilon})$. Unlike the standard logit model where $\boldsymbol{\beta}$ is a fixed parameter, the mixed logit model accounts for consumer's heterogeneity by allowing the coefficient $\boldsymbol{\beta}_i$ to be a random coefficient. Subscript i on $\boldsymbol{\beta}_i$ indicates that the coefficient varies across individuals in the population with density $f(\beta)$ in order to capture difference in taste and preferences. Random effects are useful for modeling intracluster correlation; that is, observations in the same cluster are correlated because they share common cluster-level random effects[3]. In this study, we allow for random effect in the model due to respondents' identification number (ID). We assume that the ID number of every participant is to incorporate different variables such as age, race, income, etc, which created randomness in his decision process.

In this context, consumer i will choose alternative j if and only if

$$(2) \quad \boldsymbol{U}_{ij} > \boldsymbol{U}_{ik}, \forall j \neq k.$$

Therefore, for every product r the probability that alternative j be chosen, is given by

$$(3) \quad P(j=1) = \int \left(\frac{\exp^{\boldsymbol{X}_{ij}\boldsymbol{\beta}_i}}{\sum_{j=1}^{J} \exp^{\boldsymbol{X}_{ij}\boldsymbol{\beta}_i}}\right) f(\boldsymbol{\beta}) d\boldsymbol{\beta}$$

Following Brownstone and Train (1999) this integral was approximated by mean of simulation and the maximum likelihood estimation method was used to estimate the parameters of the utility function.

Willingness-to-pay (WTP) values were found by the following formula,

$$(4) \quad WTP_i = -\frac{\boldsymbol{\beta}_i}{\boldsymbol{\beta}_p}$$

where $\boldsymbol{\beta}_i$ is the coefficient of attribute i and $\boldsymbol{\beta}_p$ represents the price coefficient (Louviere et al. 2000). The standard errors were found by using the Krinsky and Robb (1986) bootstrap procedure with 1000 iterations. Confidence intervals for the WTP estimates were then calculated using the bootstrapped standard errors.

Results

We divide the results section into two parts. First we discuss whether differences exist between buyers and non-buyers for each product. Second, we discuss the role of consumers evaluating two products through randomization.

Buyers vs. Non-Buyers

The first step was to determine if buyers (G1) and non-buyers (G2) of each product can be grouped together[4]. Our results indicate that G1 and G2 have different valuations across some attributes. We do provide WTP and their confidence intervals in Table 3 with the mixed logit estimates available in Appendix Tables 1-3. Taking maple syrup as an example, we see that buyers of maple syrup will pay a premium of $0.36 for farmers market syrup but non-buyers will not pay a premium. Other examples of differing sign, magnitudes and significance can be found Table 3. For this reason we only discuss the buyer results in the rest of this article.

For fruits and vegetables, we observe that, overall, Group 1 were more likely to pay more for organic fruits and vegetables and Group 2 were less likely to do so. This result may imply that consumers' skepticism toward buying organic product is due to the lack in prior knowledge or experience, which consequently affected their food values (Lusk 2009). On average, both groups of respondents are willing to pay 21% and 4% more than the average price for honey and maple syrup, respectively, if these two products are sold at the farmer's market. Except for apples and sweet corn, consumers tend to pay less for the rest of fruits and vegetables if they are labelled as Connecticut available at a farmer's market. In addition, results in Table 3 depict that respondents are WTP less for domestic products than for local products, and less for imported[5] products than for domestic ones. For example, Group 1 tend to pay \$0.98 less for Connecticut strawberries available at a farmer's market, \$1.20 less for New York strawberries from a grocery store, and \$4.52 less for Mexico Strawberries from a grocery store, all compared to Connecticut strawberries sold at a grocery store. The same ordering is true for Group 2 but with different absolute values. Finally, we notice that, despite the type of the product or the group involved in the analysis, no-label always affects Consumers' WTP negatively.

For plants, Group 1 were WTP almost 50% more than the average price for Christmas trees in Connecticut greenhouses and 53% more for cutting the trees themselves somewhere in Connecticut. The same group show a high WTP for White Spruce versus other types of trees, a low WTP for Christmas trees sold at the home improvement center in Oregon and Pennsylvania states and even a lower WTP for Canadian trees. Both Group 1 and Group 2 value nursery greenhouse' Azaleas and tend to pay on average \$1.53 more than the average price[6]. Except for white azaleas where Group 2 tend to pay less, both groups value the different colors of Azaleas with a high WTP for the Fuchsia color. We also observe a negative WTP for domestic Azaleas produced in other states than Connecticut and a larger negative WTP for Azaleas produced outside the US.

Like Azaleas, consumers tend to pay less for non-local Impatiens/Begonias, especially more less for the ones grown in California or the ones having no label, and almost %35 more than the average price for Azaleas sold at nursery greenhouses. However, unlike Azaleas, consumers would pay less for colors of Impatiens/Begonias.

Randomization Effects

If respondents can be randomly presented with two products consecutively then researchers can decrease costs of multiple surveys while also comparing multiple products from the same respondent pool. Our results indicate that statistical difference emerge when a person saw the product first compared to second in the randomization (Tables 4 to 8). For instance, respondents prefer non-organic maple syrup compared to organic when seen before any other product (Table 4). Respondents seeing maple syrup second in the order did not have a positive or negative preference of organic maple syrup. For honey, respondents disliked no-labelled honey more when it was seen second more than when it was seen first (Table 4). For apples, where Macoun variety did not affect participants' choice for apples when they were seen first, but they were less valued by participants when they were seen second (Table 6). The randomization effect is also present in the case of plants. From Table 7 in the appendix, we observe that Connecticut Christmas trees, whether sold at a nursery greenhouse or consumers cut them by themselves, are a lot more preferred when they are seen after any product than when they are seen second.

For the WTP, Tables 9 and 10 in the appendix report the resulting WTP from the randomization effects. Clearly, we observe a difference in magnitude and signs. For example, respondents are willing to pay \$0.27 more for Microgreens sold at Connecticut farmer's market when seen first, but \$1.8 less when seen second. In parallel, consumers tend to pay \$0.10 more for organic tomatoes when they see them first, but tend to pay \$0.18 less when they see them second. The price attribute was similar in magnitude and significance across all products.

The results above do not imply that randomizing the order of multiple products in a CBA is not viable, our results only indicate that randomization effects can be a potential problem and should be tested for. If results differ across ordering then the results for when the product was seen first should be used as this should eliminate the randomization effect.

Conclusion

The overall objective of this paper is to evaluate the importance of different attributes of three major product categories: fruits, vegetables and ornamental plants, in order to understand the relative effect of these attributes on consumer's choice. Similarly to Onozaka and McFadden (2011), this study considers two sources of product differentiation: production practices (how produced) and production locations (where produced). To accomplish our objectives we used a mixed logit model for two groups of consumers: buyers and non-buyers. We also tested for randomization effects by running different regressions for the two groups, when the product was seen first and when it was seen second. Finally, we calculated WTP for each group under each randomization treatment. Our results indicate that buyers and non-buyers have different valuations of many attributes. Further we find that randomizing whether a person views a product first or second in ordering does impact their valuation.

The above results can be used by different parties. From the policy maker's perspective, the results will help advance healthy food options and implement programs that provide support for the purchase of locally grown products. Further, our results can be used by policy makers to refine laws/regulations to insure consumer expectations are aligned with a better understanding of consumers' perception of different product attributes. Results of this study will also provide businesses with critical information as to how consumers are responding to labeling. Notably, it will allow retailers to understand the consumer trade-offs between local products so they can address consumer needs more appropriately.

Notes

[1]Eligible individuals for this survey are those who purchased the product in the past or those who are interested in buying it.

[2]Except for apples and tomatoes where we presented the participants with 12 choice sets to choose from, all other products had eight choice sets.

[3]STATA melogit.

[4]Before answering the choice questions for each product, participants were asked first if they have ever purchased the product during the past 2 years. Options were :

1. Yes
2. No, but I am interested in purchasing
3. No and I am not interested in purchasing

Participants checking the third choice were not relevant to this analysis and therefore were excluded from the model.

[5]Product that are labelled as produced in either China, Mexico, or Canada.

[6]$\frac{WTP(G1)+WTP(G2)}{2} = \frac{1.87+1.19}{2} = 1.53$

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Figures

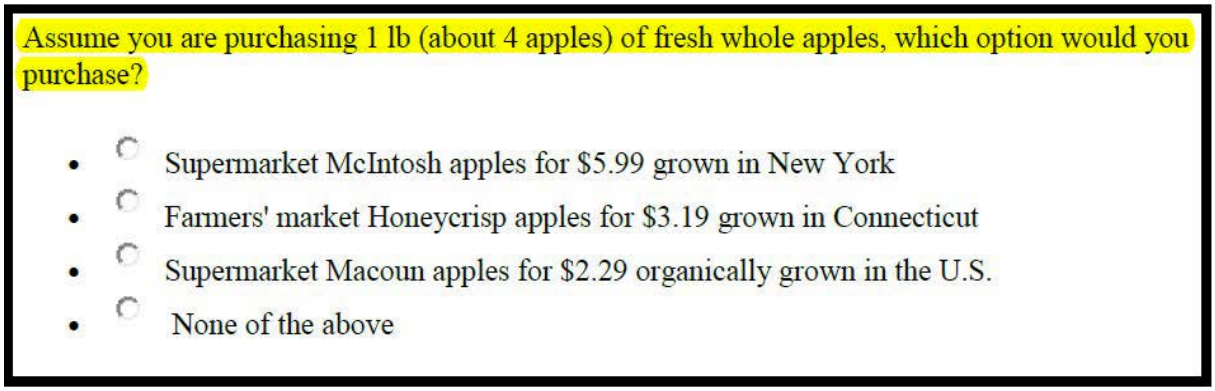

Figure 1. A sample choice set for apples product

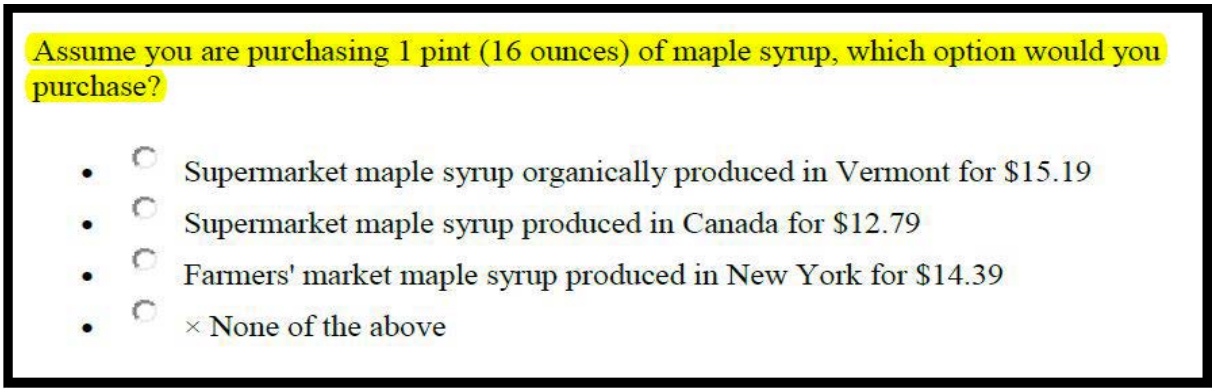

Figure 2. A sample choice set for maple syrup product

Tables

Table 1. Demographic Characteristics of the Sample

Number of Respondents		1,669
Gender	Male	37%
	Female	63%
Average Age		53
Average Income		$87,704
Ethnicity	White/Caucasian	88%
	African American	4%
	Hispanic	3%
	Asian	2%
	Other	2%
Primary Shopper	Yes	70%

Table 2. Choice Experiment Attributes and Levels

	Levels									
Attributes (*Unit*)	Strawberries (1*lb*)	Apples (1*lb*)	Sweet Corn (6*ears/cobs*)	Tomatoes (1*lb*)	Microgreens (4*ounces*)	Azaleas (2*gallon*)	Impatiens/Begonias (6*pack*)	Maple Syrup (16*ounces*)	Honey (16*ounces*)	Christ.Tree (1*tree*)
Price	1.49	1.39	0.99	0.59	0.49	15.99	1.59	11.99	2.99	20
	2.39	2.29	1.49	1.39	0.89	18.39	2.49	12.79	4.09	30
	3.29	3.19	1.99	2.29	1.29	20.79	3.59	13.59	5.19	40
	4.19	4.29	2.49	3.19	1.69	23.19	4.39	14.39	6.29	50
	5.09	5.19	2.99	4.29	2.09	25.59	5.19	15.19	7.39	60
	5.99	5.99	3.49	5.19	2.49	27.99	5.99	15.99	8.49	75
Organic	Yes, No	Yes, No	Yes, No	Yes, No	Yes, No	Yes, No		Yes, No	Yes, No	
Origin*	CT Farm	CT Farm	CT Farm	CT Farm	CT Farm	CT	CT	CT	CT	CT RT
	CT RT	CT RT	CT RT	CT RT	CT RT	NJ	NJ	NY	NY	CT you cut**
	CA RT	WA RT	US RT	CA RT	CA RT	US	CA	VT	CA	CT NGH
	NY RT	NY RT	NY RT	NY RT	NY RT	WA	US	MN	NJ	OR RT
	NJ RT	CA RT	Mexico RT	NJ RT	MA RT	Canada	Canada	Canada	Canada	PA RT
	Mexico RT	China RT	Canada RT	Mexico RT	Mexico RT	No Label	No Label	No Label	No Label	Canada RT
Variety		Macintosh		Heirloom		Vegetative	Begonia			White Spruce
		Macoun		Cherry		Bloom	Impatien			Scotch Pine
		Honey Crisp		Red Round						Frasier Fir
										Douglas Fir
Location***						NGH	NGH	Farm	Farm	
						RT	RT	RT	RT	
Color						Red	Red			
						White	White			
						Pink	Pink			
						Fuchsia	Yellow			
Size										6, 8, 10

*RT= Retail, **CT you cut= You cut the tree yourself, ***NGH= Nursery Greenhouse .

Table 3. Willingness To Pay Results by Purchasing Behavior

Maple Syrup	wtp (G1)	ll	ul	wtp(G2)	ll	ul	**Honey**	wtp (G1)	ll	ul	wtp(G2)	ll	ul
Organic	-0.26	-0.51	-0.01	-0.55	-1.11	0.02	Organic	0.18	-0.49	0.85	2.96	-0.42	6.34
Farm	0.36	0.12	0.60	0.21	-0.33	0.76	Farm	0.33	-0.33	1.00	0.89	-1.76	3.55
NY	-1.05	-1.47	-0.63	-0.58	-1.46	0.30	NY	-2.19	-3.25	-1.13	-6.37	-11.92	-0.82
VT	0.43	0.08	0.77	-0.25	-1.03	0.54	CN	-1.84	-2.89	-0.79	-4.80	-9.39	-0.20
CN	-2.88	-3.37	-2.39	-2.13	-3.11	-1.16	NJ	-1.92	-2.95	-0.90	-8.78	-15.92	-1.64
MN	-2.21	-2.68	-1.75	-2.82	-4.02	-1.62	CA	-5.36	-7.29	-3.42	-4.25	-9.14	0.65
Nolab	-2.73	-3.21	-2.26	-2.22	-3.22	-1.23	Nolab	-1.38	-2.41	-0.35	-0.91	-4.48	2.66
Microgreens	wtp (G1)	ll	ul	wtp(G2)	ll	ul	**Strawberries**	wtp (G1)	ll	ul	wtp(G2)	ll	ul
Organic	0.48	0.11	0.86	-0.04	-0.38	0.30	Organic	0.76	0.60	0.92	0.88	0.15	1.62
CT-FM	-0.10	-0.71	0.51	-0.51	-1.05	0.04	CT-FM	-0.98	-1.25	-0.70	-0.11	-1.25	1.03
NY-SUP	-1.06	-1.66	-0.47	-0.81	-1.33	-0.29	MX-SUP	-4.52	-4.92	-4.11	-4.13	-5.80	-2.46
CA-SUP	-2.19	-2.87	-1.51	-2.16	-2.78	-1.54	NY-SUP	-1.20	-1.47	-0.94	-1.35	-2.51	-0.20
US-SUP	-1.05	-1.66	-0.45	-0.80	-1.34	-0.27	CA-SUP	-2.08	-2.37	-1.80	-2.67	-4.09	-1.25
CN-SUP	-2.42	-3.13	-1.70	-2.17	-2.82	-1.53	US-SUP	-1.62	-1.88	-1.35	-1.86	-3.10	-0.63
Apples	wtp (G1)	ll	ul	wtp(G2)	ll	ul	**Tomatoes**	wtp (G1)	ll	ul	wtp(G2)	ll	ul
Organic	-0.21	-0.48	0.05	0.14	-1.04	1.33	Organic	0.04	-0.12	0.19	0.53	-0.62	1.68
Macintosh	-0.02	-0.32	0.29	1.13	-0.25	2.51	CT-FM	-0.05	-0.25	0.15	-0.46	-2.10	1.18
Macoun	-0.32	-0.63	-0.01	-0.37	-1.75	1.02	NJ-SUP	-1.77	-2.03	-1.50	-1.64	-3.66	0.39
CT-FM	1.08	0.68	1.48	0.17	-1.56	1.90	MX-SUP	-3.34	-3.67	-3.01	-2.60	-4.87	-0.32
NY-SUP	0.95	0.56	1.34	0.29	-1.42	2.01	US-SUP	-2.01	-2.31	-1.72	-0.48	-2.56	1.60
WA-SUP	-1.47	-1.91	-1.03	-1.80	-3.78	0.17	CA-SUP	-1.57	-1.82	-1.31	-0.52	-2.32	1.28
US-SUP	0.62	0.20	1.03	1.18	-0.67	3.03	Red Round	-0.27	-0.46	-0.07	-1.37	-2.80	0.07
CH-SUP	-3.49	-4.15	-2.83	-2.02	-4.31	0.26	Heirloom	0.19	0.00	0.37	-0.83	-2.22	0.56
Sweet Corn	wtp (G1)	ll	ul	wtp(G2)	ll	ul	**Christ.Trees**	wtp (G1)	ll	ul	wtp(G2)	ll	ul
Organic	0.20	-0.17	0.57	-0.08	-0.96	0.80	Height	-2.75	-3.86	-1.65	-3.97	-5.83	-2.12
CT-FM	0.20	-0.36	0.75	1.93	0.17	3.69	White	15.70	7.94	23.47	4.57	-6.54	15.67
US-SUP	-1.49	-2.09	-0.89	0.64	-1.06	2.33	Scotch	12.12	3.89	20.35	4.84	-7.44	17.13
CN-SUP	-2.47	-3.33	-1.60	0.44	-1.28	2.17	Frasier	12.33	4.62	20.04	5.13	-6.46	16.72
MX-SUP	-3.05	-3.97	-2.13	0.50	-1.24	2.23	NGH-CT	22.05	12.42	31.68	17.42	2.63	32.21
NY-SUP	-1.38	-2.01	-0.76	1.00	-0.71	2.71	HIC-OR	-17.92	-28.40	-7.43	-21.20	-38.75	-3.64
							HIC-CN	-36.58	-48.08	-25.08	-47.37	-66.73	-28.01
							CC-CT	24.25	16.45	32.06	14.86	3.11	26.62
							HIC-PA	-12.18	-20.01	-4.36	-8.72	-20.85	3.40
Azaleas	wtp (G1)	ll	ul	wtp(G2)	ll	ul	**Impatiens/Begonia**	wtp (G1)	ll	ul	wtp(G2)	ll	ul
Nurse	1.87	0.69	3.06	1.19	0.33	2.06	Nurse	1.62	1.26	1.98	1.12	0.68	1.55
CN	-5.01	-7.00	-3.02	-4.57	-5.99	-3.14	Begonias	-0.78	-1.12	-0.44	-0.76	-1.18	-0.34
WA	-5.48	-7.65	-3.32	-3.82	-5.31	-2.34	CN	-2.58	-3.17	-2.00	-2.66	-3.38	-1.95
US	-3.70	-5.64	-1.77	-4.51	-5.97	-3.05	CA	-3.54	-4.23	-2.85	-3.19	-3.97	-2.41
NJ	-4.12	-6.10	-2.14	-2.92	-4.36	-1.48	US	-1.79	-2.32	-1.27	-1.58	-2.20	-0.96
Nolab	-3.80	-5.73	-1.86	-3.66	-5.05	-2.27	NJ	-1.12	-1.63	-0.62	-1.09	-1.73	-0.45
White	0.02	-1.65	1.68	-0.58	-1.80	0.63	Nolab	-3.06	-3.79	-2.32	-2.72	-3.57	-1.87
Pink	0.94	-0.75	2.63	0.11	-1.11	1.33	White	-0.62	-1.08	-0.17	-0.60	-1.18	-0.02
fuchsia	3.62	1.99	5.25	2.46	1.32	3.60	Pink	-0.27	-0.74	0.20	0.45	-0.13	1.03
Bloom	3.54	2.28	4.79	3.55	2.63	4.47	Yellow	-1.11	-1.62	-0.61	-0.59	-1.21	0.03

ll : Lower Level
ul : Upper Level

Table 4. Mixed Logit Results by Randomization

Maple Syrup	G1-first	G1-second	**Honey**	G1-first	G1-second
p	-0.601***	-0.461***	p	-0.626***	-0.456***
	(-0.688 - -0.514)	(-0.538 - -0.383)		(-0.815 - -0.437)	(-0.638 - -0.275)
organic	-0.220**	-0.0299	organic	-0.0209	0.124
	(-0.428 - -0.0121)	(-0.232 - 0.172)		(-0.586 - 0.544)	(-0.435 - 0.683)
farm	-0.0202	0.219**	farm	0.340	-0.360
	(-0.226 - 0.186)	(0.0233 - 0.415)		(-0.228 - 0.907)	(-0.920 - 0.200)
ny	-0.523***	-0.474***	ny	-1.531***	-1.146**
	(-0.866 - -0.179)	(-0.792 - -0.156)		(-2.495 - -0.567)	(-2.037 - -0.255)
vt	0.321**	0.137	can	-0.378	-1.755***
	(0.0351 - 0.608)	(-0.147 - 0.421)		(-1.327 - 0.570)	(-2.702 - -0.808)
can	-1.507***	-1.476***	nj	-1.054**	-1.362***
	(-1.858 - -1.156)	(-1.829 - -1.123)		(-1.991 - -0.117)	(-2.340 - -0.383)
mn	-1.232***	-1.115***	ca	-2.672***	-3.179***
	(-1.581 - -0.883)	(-1.445 - -0.784)		(-4.057 - -1.286)	(-4.760 - -1.598)
nolab	-1.684***	-1.352***	nolab	-0.800*	-0.941**
	(-2.049 - -1.319)	(-1.691 - -1.013)		(-1.749 - 0.150)	(-1.867 - -0.0160)
Constant	7.990***	5.803***	Constant	3.158***	2.839***
	(6.807 - 9.173)	(4.745 - 6.862)		(1.732 - 4.585)	(1.440 - 4.237)
Observations	2,511	2,622		351	330
Number of groups	258	260		32	33

Table 5. Mixed Logit Results by Randomization

Microgreens	G1-first	G1-second	**Strawberries**	G1-first	G1-second
p	-0.498***	-0.487***	p	-0.758***	-0.772***
	(-0.558 - -0.438)	(-0.558 - -0.415)		(-0.823 - -0.694)	(-0.842 - -0.701)
organic	0.285**	0.257*	organic	0.547***	0.480***
	(0.00182 - 0.569)	(-0.0483 - 0.563)		(0.365 - 0.729)	(0.283 - 0.676)
fmct	0.136	-0.527*	ctfm	-0.621***	-1.018***
	(-0.323 - 0.594)	(-1.062 - 0.00831)		(-0.916 - -0.325)	(-1.344 - -0.693)
nysup	-0.483**	-0.852***	mxsup	-3.375***	-3.663***
	(-0.940 - -0.0260)	(-1.302 - -0.402)		(-3.779 - -2.972)	(-4.116 - -3.211)
casup	-0.871***	-1.353***	nysup	-0.950***	-0.916***
	(-1.369 - -0.373)	(-1.866 - -0.840)		(-1.240 - -0.659)	(-1.232 - -0.601)
ussup	-0.476**	-0.620***	casup	-1.621***	-1.559***
	(-0.920 - -0.0325)	(-1.082 - -0.158)		(-1.912 - -1.330)	(-1.872 - -1.246)
cansup	-1.168***	-1.582***	ussup	-1.096***	-1.389***
	(-1.678 - -0.658)	(-2.153 - -1.010)		(-1.376 - -0.816)	(-1.704 - -1.075)
Constant	2.083***	2.243***	Constant	2.653***	2.852***
	(1.625 - 2.541)	(1.775 - 2.712)		(2.358 - 2.948)	(2.518 - 3.186)
Observations	1,434	1,227		3,432	2,973
Number of groups	137	128		310	301

Table 6. Mixed Logit Results by Randomization

Apples	G1-first	G1-second	**Tomatoes**	G1-first	G1-second
p	-0.389***	-0.331***	p	-0.581***	-0.657***
	(-0.434 - -0.343)	(-0.378 - -0.284)		(-0.633 - -0.529)	(-0.715 - -0.600)
organic	-0.218***	0.0133	organic	0.0569	-0.121
	(-0.365 - -0.0710)	(-0.137 - 0.164)		(-0.0883 - 0.202)	(-0.277 - 0.0356)
mctsh	0.136	-0.0339	ctfm	-0.128	-0.0240
	(-0.0279 - 0.300)	(-0.205 - 0.137)		(-0.308 - 0.0517)	(-0.224 - 0.176)
mcoun	-0.0827	-0.173*	njsup	-1.051***	-1.106***
	(-0.251 - 0.0859)	(-0.348 - 0.00219)		(-1.271 - -0.831)	(-1.369 - -0.843)
ctfm	0.385***	0.421***	mxsup	-2.010***	-2.206***
	(0.175 - 0.595)	(0.202 - 0.640)		(-2.271 - -1.749)	(-2.497 - -1.916)
nysup	0.313***	0.373***	ussup	-1.436***	-1.161***
	(0.105 - 0.521)	(0.155 - 0.590)		(-1.698 - -1.175)	(-1.439 - -0.883)
wasup	-0.533***	-0.441***	calsup	-1.019***	-1.045***
	(-0.764 - -0.303)	(-0.680 - -0.203)		(-1.246 - -0.793)	(-1.287 - -0.803)
ussup	0.229**	0.174	red	-0.216**	-0.155
	(0.01000 - 0.449)	(-0.0588 - 0.407)		(-0.399 - -0.0338)	(-0.351 - 0.0408)
chsup	-1.357***	-1.129***	hrlm	0.0551	0.127
	(-1.677 - -1.036)	(-1.443 - -0.815)		(-0.115 - 0.225)	(-0.0599 - 0.314)
Constant	0.455***	0.153	Constant	1.488***	1.702***
	(0.199 - 0.711)	(-0.119 - 0.425)		(1.252 - 1.723)	(1.437 - 1.966)
Observations	5,103	4,638		4,761	4,278
Number of groups	308	300		303	303

Table 7. Mixed Logit Results by Randomization

Sweet Corn	G1-first	G1-second	**Christmas Trees**	G1-first	G1-second
p	-0.726***	-0.924***	p	-0.0382***	-0.0308***
	(-1.012 - -0.440)	(-1.250 - -0.598)		(-0.0469 - -0.0296)	(-0.0401 - -0.0214)
organic	0.430*	0.145	height	-0.0934***	-0.107***
	(-0.0209 - 0.881)	(-0.329 - 0.619)		(-0.149 - -0.0382)	(-0.164 - -0.0494)
ctfm	0.000239	0.244	white	0.268	0.781***
	(-0.668 - 0.669)	(-0.516 - 1.005)		(-0.0991 - 0.634)	(0.387 - 1.175)
ussup	-1.563***	-0.723*	scotch	0.368*	0.676***
	(-2.254 - -0.872)	(-1.499 - 0.0535)		(-0.00468 - 0.741)	(0.212 - 1.141)
cansup	-2.726***	-1.669***	frasier	0.464**	0.312
	(-3.690 - -1.762)	(-2.585 - -0.753)		(0.0941 - 0.833)	(-0.102 - 0.726)
mxsup	-2.643***	-2.229***	NGHCT	0.576***	1.005***
	(-3.523 - -1.762)	(-3.242 - -1.216)		(0.169 - 0.983)	(0.481 - 1.530)
nysup	-1.448***	-0.626	HICOR	-0.582**	-0.556*
	(-2.133 - -0.763)	(-1.406 - 0.154)		(-1.068 - -0.0973)	(-1.125 - 0.0129)
Constant	1.653***	1.796***	HICCN	-1.284***	-1.195***
	(0.838 - 2.469)	(0.845 - 2.747)		(-1.862 - -0.706)	(-1.843 - -0.548)
			CCCT	0.628***	1.051***
				(0.257 - 0.999)	(0.607 - 1.494)
			HICPA	-0.984***	0.193
				(-1.419 - -0.550)	(-0.288 - 0.674)
			Constant	1.054***	0.303
				(0.389 - 1.719)	(-0.485 - 1.090)
Observations	474	393		1,533	1,428
Number of groups	43	44		133	131

Table 8. Mixed Logit Results by Randomization

Azaleas	G1-first	G1-second	**Impatiens/Begonias**	G1-first	G1-second
p	-0.166***	-0.211***	p	-0.549***	-0.575***
	(-0.205 - -0.128)	(-0.257 - -0.165)		(-0.644 - -0.453)	(-0.674 - -0.475)
nurse	0.322**	0.309	nurse	1.040***	0.857***
	(0.0285 - 0.615)	(-0.0648 - 0.684)		(0.751 - 1.329)	(0.556 - 1.158)
can	-0.838***	-1.133***	beg	-0.350***	-0.488***
	(-1.319 - -0.358)	(-1.705 - -0.560)		(-0.611 - -0.0896)	(-0.782 - -0.193)
wa	-0.977***	-1.260***	can	-1.387***	-1.618***
	(-1.489 - -0.465)	(-1.892 - -0.629)		(-1.804 - -0.970)	(-2.079 - -1.156)
us	-0.383	-1.163***	ca	-2.047***	-2.020***
	(-0.843 - 0.0770)	(-1.750 - -0.576)		(-2.500 - -1.593)	(-2.473 - -1.567)
nj	-1.044***	-0.380	us	-1.341***	-0.853***
	(-1.565 - -0.523)	(-0.986 - 0.227)		(-1.765 - -0.916)	(-1.258 - -0.449)
nolab	-0.735***	-0.720**	nj	-0.425**	-1.157***
	(-1.225 - -0.245)	(-1.278 - -0.162)		(-0.825 - -0.0243)	(-1.602 - -0.712)
wh	-0.144	0.240	nolab	-1.306***	-2.314***
	(-0.552 - 0.263)	(-0.287 - 0.768)		(-1.753 - -0.859)	(-2.924 - -1.704)
pink	0.0738	0.418	wh	-0.00829	-0.829***
	(-0.332 - 0.479)	(-0.126 - 0.961)		(-0.364 - 0.348)	(-1.232 - -0.426)
fuch	0.392*	1.144***	pink	-0.140	-0.384**
	(-0.00709 - 0.792)	(0.653 - 1.636)		(-0.535 - 0.255)	(-0.764 - -0.00455)
bloom	0.576***	0.685***	yel	-0.414**	-0.990***
	(0.249 - 0.902)	(0.281 - 1.090)		(-0.818 - -0.0105)	(-1.410 - -0.570)
Constant	2.849***	3.479***	Constant	1.884***	2.717***
	(1.942 - 3.757)	(2.353 - 4.606)		(1.404 - 2.365)	(2.102 - 3.332)
Observations	1,050	798		1,548	1,494
Number of groups	79	78		145	145

Table 9. Willingness To Pay Results When The Product Was Seen First

Maple Syrup	wtp (G1)	ll	ul	**Honey**	wtp (G1)	ll	ul
Organic	-0.37	-0.72	-0.01	Organic	-0.03	-0.93	0.87
Farm	-0.03	-0.38	0.31	Farm	0.54	-0.36	1.44
NY	-0.87	-1.49	-0.25	NY	-2.45	-3.90	-1.00
VT	0.53	0.06	1.01	CN	-0.60	-2.07	0.86
CN	-2.51	-3.16	-1.85	NJ	-1.68	-3.02	-0.34
MN	-2.05	-2.72	-1.38	CA	-4.27	-6.61	-1.93
Nolab	-2.80	-3.47	-2.13	Nolab	-1.28	-2.68	0.13
Microgreens	wtp (G1)	ll	ul	**Strawberries**	wtp (G1)	ll	ul
Organic	0.57	0.00	1.15	Organic	0.72	0.48	0.96
CT-FM	0.27	-0.64	1.19	CT-FM	-0.82	-1.22	-0.41
NY-SUP	-0.97	-1.89	-0.05	MX-SUP	-4.45	-5.05	-3.85
CA-SUP	-1.75	-2.78	-0.71	NY-SUP	-1.25	-1.64	-0.86
US-SUP	-0.96	-1.87	-0.05	CA-SUP	-2.14	-2.56	-1.71
CN-SUP	-2.34	-3.39	-1.30	US-SUP	-1.45	-1.83	-1.06
Apples	wtp (G1)	ll	ul	**Tomatoes**	wtp (G1)	ll	ul
Organic	-0.56	-0.92	-0.20	Organic	0.10	-0.15	0.35
Macintosh	0.35	-0.07	0.77	CT-FM	-0.22	-0.53	0.09
Macoun	-0.21	-0.65	0.22	NJ-SUP	-1.81	-2.22	-1.39
CT-FM	0.99	0.44	1.54	MX-SUP	-3.46	-3.98	-2.94
NY-SUP	0.81	0.26	1.35	US-SUP	-2.47	-2.96	-1.98
WA-SUP	-1.37	-1.98	-0.76	CA-SUP	-1.75	-2.19	-1.32
US-SUP	0.59	0.02	1.16	Red Round	-0.37	-0.68	-0.06
CH-SUP	-3.49	-4.43	-2.55	Heirloom	0.09	-0.20	0.39
Sweet Corn	wtp (G1)	ll	ul	**Christ.Trees**	wtp (G1)	ll	ul
Organic	0.59	-0.06	1.24	Height	-2.44	-3.91	-0.98
CT-FM	0.0003	-0.92	0.92	White	7.00	-2.79	16.79
US-SUP	-2.15	-3.27	-1.04	Scotch	9.63	-0.57	19.84
CN-SUP	-3.75	-5.67	-1.84	Frasier	12.13	1.97	22.29
MX-SUP	-3.64	-5.28	-2.00	NGH-CT	15.06	3.34	26.78
NY-SUP	-1.99	-3.14	-0.85	HIC-OR	-15.23	-29.16	-1.31
				HIC-CN	-33.59	-48.80	-18.37
				CC-CT	16.43	6.64	26.21
				HIC-PA	-25.75	-37.57	-13.93
Azaleas	wtp (G1)	ll	ul	**Impatiens/ Begonias**	wtp (G1)	ll	ul
Nurse	1.93	0.16	3.71	Nurse	1.90	1.38	2.42
CN	-5.04	-8.07	-2.01	Begonia	-0.64	-1.12	-0.15
WA	-5.87	-9.24	-2.51	CN	-2.53	-3.36	-1.69
US	-2.30	-5.12	0.52	CA	-3.73	-4.79	-2.67
NJ	-6.28	-9.42	-3.13	US	-2.44	-3.26	-1.63
Nolab	-4.42	-7.45	-1.38	NJ	-0.77	-1.51	-0.04
White	-0.87	-3.33	1.60	Nolab	-2.38	-3.35	-1.41
Pink	0.44	-2.00	2.88	White	-0.02	-0.66	0.63
Fuchsia	2.36	-0.05	4.76	Pink	-0.26	-0.99	0.48
Bloom	3.46	1.61	5.31	Yellow	-0.76	-1.50	-0.01

ll : Lower Level
ul : Upper Level

Table 10. Willingness To Pay Results When The Product Was Seen Second

Maple Syrup	wtp (G1)	ll	ul	**Honey**	wtp (G1)	ll	ul
Organic	-0.06	-0.50	0.37	Organic	0.27	-0.95	1.50
Farm	0.48	0.04	0.91	Farm	-0.79	-2.09	0.52
NY	-1.03	-1.77	-0.28	NY	-2.51	-4.37	-0.65
VT	0.30	-0.32	0.91	CN	-3.84	-5.71	-1.98
CN	-3.21	-4.11	-2.30	NJ	-2.98	-4.96	-1.01
MN	-2.42	-3.27	-1.57	CA	-6.97	-10.94	-3.00
Nolab	-2.94	-3.80	-2.07	Nolab	-2.06	-3.83	-0.29
Microgreens	wtp (G1)	ll	ul	**Strawberries**	wtp (G1)	ll	ul
Organic	0.53	-0.10	1.16	Organic	0.62	0.37	0.88
CT-FM	-1.08	-2.23	0.06	CT-FM	-1.32	-1.77	-0.87
NY-SUP	-1.75	-2.72	-0.78	MX-SUP	-4.75	-5.41	-4.08
CA-SUP	-2.78	-3.96	-1.60	NY-SUP	-1.19	-1.60	-0.77
US-SUP	-1.27	-2.28	-0.27	CA-SUP	-2.02	-2.47	-1.57
CN-SUP	-3.25	-4.52	-1.98	US-SUP	-1.80	-2.24	-1.37
Apples	wtp (G1)	ll	ul	**Tomatoes**	wtp (G1)	ll	ul
Organic	0.04	-0.42	0.50	Organic	-0.18	-0.42	0.06
Macintosh	-0.10	-0.62	0.42	CT-FM	-0.04	-0.34	0.27
Macoun	-0.52	-1.05	0.01	NJ-SUP	-1.68	-2.11	-1.26
CT-FM	1.27	0.58	1.96	MX-SUP	-3.36	-3.86	-2.85
NY-SUP	1.13	0.45	1.80	US-SUP	-1.77	-2.21	-1.32
WA-SUP	-1.33	-2.07	-0.60	CA-SUP	-1.59	-1.98	-1.20
US-SUP	0.53	-0.19	1.24	Red Round	-0.24	-0.53	0.06
CH-SUP	-3.41	-4.50	-2.32	Heirloom	0.19	-0.09	0.48
Sweet Corn	wtp (G1)	ll	ul	**Christ.Trees**	wtp (G1)	ll	ul
Organic	0.16	-0.36	0.67	Height	-3.46	-5.59	-1.33
CT-FM	0.26	-0.55	1.08	White	25.37	8.58	42.16
US-SUP	-0.78	-1.60	0.04	Scotch	21.98	3.54	40.42
CN-SUP	-1.81	-2.95	-0.66	Frasier	10.15	-4.49	24.78
MX-SUP	-2.41	-3.65	-1.18	NGH-CT	32.67	11.05	54.29
NY-SUP	-0.68	-1.53	0.17	HIC-OR	-18.06	-37.64	1.51
				HIC-CN	-38.85	-60.10	-17.59
				CC-CT	34.15	16.79	51.51
				HIC-PA	6.27	-10.10	22.65
Azaleas	wtp (G1)	ll	ul	**Impatiens/ Begonias**	wtp (G1)	ll	ul
Nurse	1.46	-0.29	3.22	Nurse	1.49	0.91	2.07
CN	-5.36	-8.22	-2.50	Begonia	-0.85	-1.38	-0.32
WA	-5.96	-9.03	-2.90	CN	-2.82	-3.70	-1.93
US	-5.50	-8.41	-2.59	CA	-3.52	-4.48	-2.55
NJ	-1.80	-4.59	1.00	US	-1.49	-2.23	-0.74
Nolab	-3.40	-6.04	-0.77	NJ	-2.01	-2.78	-1.25
White	1.14	-1.37	3.64	Nolab	-4.03	-5.31	-2.74
Pink	1.98	-0.64	4.59	White	-1.44	-2.14	-0.74
Fuchsia	5.41	2.94	7.89	Pink	-0.67	-1.34	0.00
Bloom	3.24	1.34	5.14	Yellow	-1.72	-2.47	-0.97

ll : Lower Level
ul : Upper Level

Using a Randomized Choice Experiment to Test Willingness to Pay for Multiple Differentiated Products

Appendix

The material contained herein is supplementary to the article named in the title and submitted to the American Journal of Agricultural Economics (AJAE).

Tables

Table 1. Mixed Logit Results by Purchasing Behavior

Maple Syrup	G1	G2	**Honey**	G1	G2
P	-0.547***	-0.780***	P	-0.532***	-0.431**
	(-0.600 - -0.494)	(-0.960 - -0.601)		(-0.649 - -0.415)	(-0.774 - -0.0889)
Organic	-0.144**	-0.426*	Organic	0.0973	1.277**
	(-0.279 - -0.00860)	(-0.857 - 0.00505)		(-0.257 - 0.452)	(0.0901 - 2.465)
Farm	0.196***	0.166	Farm	0.178	0.385
	(0.0653 - 0.328)	(-0.259 - 0.592)		(-0.182 - 0.537)	(-0.805 - 1.574)
NY	-0.575***	-0.451	NY	-1.165***	-2.748**
	(-0.788 - -0.362)	(-1.112 - 0.210)		(-1.764 - -0.567)	(-4.888 - -0.609)
VT	0.234**	-0.191	CN	-0.980***	-2.070**
	(0.0429 - 0.424)	(-0.798 - 0.415)		(-1.590 - -0.370)	(-4.012 - -0.127)
CN	-1.578***	-1.665***	NJ	-1.023***	-3.789***
	(-1.814 - -1.343)	(-2.388 - -0.942)		(-1.628 - -0.418)	(-6.518 - -1.060)
MN	-1.212***	-2.202***	CA	-2.850***	-1.832*
	(-1.431 - -0.992)	(-3.008 - -1.396)		(-3.798 - -1.902)	(-3.804 - 0.141)
Nolab	-1.495***	-1.734***	Nolab	-0.732**	-0.393
	(-1.721 - -1.269)	(-2.461 - -1.006)		(-1.324 - -0.140)	(-2.008 - 1.221)
Constant	7.045***	10.23***	Constant	2.746***	1.797
	(6.324 - 7.766)	(7.764 - 12.69)		(1.861 - 3.630)	(-0.760 - 4.354)
Observations	6,264	744		792	96
Number of groups	261	31		33	4
Microgreens	G1	G2	**Strawberries**	G1	G2
P	-0.494***	-0.642***	P	-0.772***	-0.647***
	(-0.536 - -0.453)	(-0.697 - -0.586)		(-0.817 - -0.727)	(-0.811 - -0.483)
Organic	0.240**	-0.0252	Organic	0.585***	0.572**
	(0.0559 - 0.424)	(-0.243 - 0.193)		(0.460 - 0.709)	(0.113 - 1.031)
CT-FM	-0.0499	-0.325*	CT-FM	-0.754***	-0.0717
	(-0.353 - 0.253)	(-0.674 - 0.0246)		(-0.956 - -0.551)	(-0.802 - 0.658)
NY-SUP	-0.526***	-0.520***	MX-SUP	-3.488***	-2.671***
	(-0.815 - -0.238)	(-0.850 - -0.189)		(-3.765 - -3.212)	(-3.600 - -1.742)
CA-SUP	-1.082***	-1.383***	NY-SUP	-0.930***	-0.875**
	(-1.397 - -0.767)	(-1.756 - -1.010)		(-1.128 - -0.732)	(-1.596 - -0.154)
US-SUP	-0.521***	-0.516***	CA-SUP	-1.607***	-1.726***
	(-0.809 - -0.232)	(-0.849 - -0.182)		(-1.806 - -1.409)	(-2.512 - -0.941)
CN-SUP	-1.195***	-1.395***	US-SUP	-1.247***	-1.204***
	(-1.534 - -0.855)	(-1.803 - -0.986)		(-1.442 - -1.052)	(-1.938 - -0.471)
Constant	2.091***	2.760***	Constant	2.718***	2.004***
	(1.804 - 2.378)	(2.392 - 3.129)		(2.513 - 2.923)	(1.265 - 2.744)
Observations	3,288	2,952		7,440	504
Number of groups	137	123		310	21

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
CN = Canada, MX = Mexico, Nolab = No label, CT-FM = Connecticut Farm, SUP = Supermarket

Table 2. Mixed Logit Results by Purchasing Behavior

Apples	G1	G2	**Tomatoes**	G1	G2
P	-0.366***	-0.349***	P	-0.618***	-0.512***
	(-0.396 - -0.335)	(-0.477 - -0.222)		(-0.653 - -0.583)	(-0.716 - -0.307)
Organic	-0.0781	0.0498	Organic	0.0237	0.269
	(-0.176 - 0.0199)	(-0.359 - 0.459)		(-0.0719 - 0.119)	(-0.321 - 0.860)
Macintosh	-0.00713	0.394*	CT-FM	-0.0310	-0.234
	(-0.118 - 0.104)	(-0.0661 - 0.854)		(-0.152 - 0.0904)	(-1.058 - 0.589)
Macoun	-0.116**	-0.128	NJ-SUP	-1.091***	-0.837*
	(-0.229 - -0.00256)	(-0.612 - 0.355)		(-1.245 - -0.937)	(-1.809 - 0.135)
CT-FM	0.395***	0.0594	MX-SUP	-2.063***	-1.329**
	(0.253 - 0.537)	(-0.545 - 0.663)		(-2.240 - -1.886)	(-2.379 - -0.279)
NY-SUP	0.348***	0.103	US-SUP	-1.243***	-0.246
	(0.208 - 0.488)	(-0.495 - 0.700)		(-1.413 - -1.073)	(-1.298 - 0.806)
WA-SUP	-0.538***	-0.631*	CA-SUP	-0.967***	-0.265
	(-0.694 - -0.383)	(-1.285 - 0.0241)		(-1.115 - -0.820)	(-1.169 - 0.638)
US-SUP	0.226***	0.412	Red Round	-0.164***	-0.698*
	(0.0764 - 0.376)	(-0.209 - 1.032)		(-0.284 - -0.0440)	(-1.428 - 0.0314)
CH-SUP	-1.276***	-0.707*	Heirloom	0.117**	-0.423
	(-1.487 - -1.066)	(-1.440 - 0.0270)		(0.00237 - 0.231)	(-1.127 - 0.281)
Constant	0.313***	-0.0221	Constant	1.487***	1.291***
Observations	11,268	684		10,908	252
Number of groups	313	19		303	7
Sweet Corn	G1	G2	**Christmas Trees**	G1	G2
p	-0.796***	-0.881***	P	-0.0361***	-0.0404***
	(-0.989 - -0.604)	(-1.402 - -0.361)		(-0.0421 - -0.0301)	(-0.0516 - -0.0291)
Organic	0.160	-0.0704	Height	-0.0995***	-0.160***
	(-0.130 - 0.451)	(-0.844 - 0.704)		(-0.138 - -0.0614)	(-0.230 - -0.0912)
CT-FM	0.157	1.705**	White	0.567***	0.184
	(-0.287 - 0.600)	(0.237 - 3.173)		(0.314 - 0.821)	(-0.255 - 0.624)
US-SUP	-1.187***	0.561	Scotch	0.438***	0.195
	(-1.658 - -0.717)	(-0.871 - 1.993)		(0.163 - 0.713)	(-0.287 - 0.678)
CN-SUP	-1.965***	0.391	Frasier	0.446***	0.207
	(-2.515 - -1.416)	(-1.132 - 1.914)		(0.186 - 0.705)	(-0.249 - 0.663)
MX-SUP	-2.426***	0.436	NGH-CT	0.797***	0.703**
	(-3.026 - -1.826)	(-1.066 - 1.939)		(0.497 - 1.096)	(0.165 - 1.241)
NY-SUP	-1.101***	0.877	HIC-OR	-0.648***	-0.856***
	(-1.572 - -0.630)	(-0.566 - 2.321)		(-0.993 - -0.302)	(-1.483 - -0.229)
Constant	1.753***	0.272	HIC-CN	-1.322***	-1.912***
	(1.178 - 2.328)	(-1.249 - 1.793)		(-1.733 - -0.911)	(-2.687 - -1.138)
			CC-CT	0.876***	0.600**
				(0.612 - 1.141)	(0.125 - 1.075)
			HIC-PA	-0.440***	-0.352
				(-0.731 - -0.150)	(-0.853 - 0.149)
			Constant	0.776***	1.934***
				(0.299 - 1.252)	(1.052 - 2.817)
Observations	1,056	144		3,216	936
Number of groups	44	6		134	39

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
CN = Canada, MX = Mexico, CH = China, CT-FM = Connecticut Farm, SUP = Supermarket
HIC= Home Improvement Center, CC = CT you cut= You cut the tree yourself, NGH= Nursery Greenhouse

Table 3. Mixed Logit Results by Purchasing Behavior

Azaleas	G1	G2	**Imaptiens/Begonias**	G1	G2
P	-0.189***	-0.245***	P	-0.534***	-0.772***
	(-0.218 - -0.160)	(-0.273 - -0.216)		(-0.595 - -0.473)	(-0.887 - -0.658)
Nurse	0.354***	0.291***	Nurse	0.866***	0.862***
	(0.129 - 0.578)	(0.0771 - 0.506)		(0.682 - 1.049)	(0.522 - 1.201)
CN	-0.945***	-1.117***	Begonias	-0.416***	-0.586***
	(-1.304 - -0.586)	(-1.455 - -0.780)		(-0.593 - -0.239)	(-0.905 - -0.267)
WA	-1.035***	-0.936***	CN	-1.380***	-2.056***
	(-1.423 - -0.647)	(-1.288 - -0.583)		(-1.664 - -1.096)	(-2.559 - -1.553)
US	-0.699***	-1.102***	CA	-1.890***	-2.464***
	(-1.051 - -0.346)	(-1.442 - -0.762)		(-2.189 - -1.590)	(-2.995 - -1.932)
NJ	-0.777***	-0.714***	US	-0.958***	-1.218***
	(-1.162 - -0.391)	(-1.080 - -0.348)		(-1.223 - -0.692)	(-1.679 - -0.758)
Nolab	-0.717***	-0.895***	NJ	-0.601***	-0.841***
	(-1.077 - -0.356)	(-1.234 - -0.556)		(-0.870 - -0.332)	(-1.331 - -0.350)
White	0.00309	-0.143	Nolab	-1.633***	-2.102***
	(-0.311 - 0.317)	(-0.438 - 0.153)		(-1.954 - -1.312)	(-2.669 - -1.535)
Pink	0.177	0.0267	White	-0.333***	-0.463**
	(-0.140 - 0.494)	(-0.272 - 0.326)		(-0.571 - -0.0951)	(-0.903 - -0.0229)
Fuchsia	0.683***	0.601***	Pink	-0.145	0.349
	(0.384 - 0.982)	(0.322 - 0.880)		(-0.392 - 0.103)	(-0.106 - 0.805)
Bloom	0.667***	0.867***	Yellow	-0.594***	-0.457*
	(0.420 - 0.914)	(0.632 - 1.103)		(-0.858 - -0.330)	(-0.935 - 0.0206)
Constant	3.163***	4.355***	Constant	2.064***	3.351***
	(2.472 - 3.854)	(3.698 - 5.013)		(1.723 - 2.405)	(2.700 - 4.003)
Observations	1,896	2,472		3,480	1,296
Number of groups	79	103		145	54

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Nurse = Nursery Greenhouse, Nolab = No label