Food Distribution Research Society

Journal of Food Distribution Research
Volume 57, Issue 1, pp. 1–8

Consumer Preferences and Willingness to Pay for Specialty Processed Foods: Do Multiple Labels Make a Difference?

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Abstract

This study examines consumer preferences and willingness to pay (WTP) for specialty-labeled processed foods, focusing on the impacts of dual-product labeling. Data were collected via a 2024 online survey of U.S. West consumers and employed choice experiments for three processed products, displaying two or fewer of four possible labels. Results show respondent low label familiarity but high consumption frequency. Respondent WTP for dual-labeled products exceeded that of single-labeled by $1.60 to $4.60 per item, depending on the product. Overall, study findings indicate that combination labeling can increase consumer WTP and support product differentiation, but preferred labels vary by product.

Keywords: choice experiment, processed foods, specialty labels, willingness to pay

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Introduction

Specialty-labeled foods have grown in popularity due to the important information they provide on product attributes, especially for credence attributes, which cannot be observed or experienced by consumers. Common food labels include organic, local, non-GMO, natural, eco-friendly, fair-trade, and grass-fed, among others. Previous literature found that consumer preferences and willingness to pay (WTP) for specialty-labeled foods often depend upon the type of product, such as fresh versus processed, virtue versus vice, and perishable versus low or non-perishable (Van Doorn and Verhoef, 2011; Grebitus, Lusk, and Nayga, 2013; Mugera, Burton, and Downsborough, 2017; Blare, Donovan, and del Pozo, 2019; Drugova, Curtis, and Akhundjanov, 2020a, 2020b).

Additionally, the literature indicates that for products exhibiting two or more labels, some consumers see the labels as substitutes, or redundant, while others view the labels as complements, depending on the labels employed (He and Bernard, 2011; Wilson and Lusk, 2020; Ufer, Ortega, and Wolf, 2022; Papoutsi, 2023). Also, consumers tend to ignore one or more labels when choosing multiple-labeled products for a variety of reasons, including, but not limited to, decision simplification, lack of interest in or understanding of the label, etc. (Drugova, Curtis, and Akhundjanov, 2020a; Drugova and Curtis, 2025). These complexities, both real and perceived, can make it difficult for food system stakeholders to identify which specialty labels or label combinations appeal most to their market(s) and thus enhance their profit maximization strategies.

As some labeling programs, such as certified organic, require large upfront costs and long-term planning, it is imperative that producers have credible market information. Hence, this study was undertaken to provide such information to agricultural producers and food processors in the U.S. West. Specifically, the study explores consumer preferences and WTP for specialty-labeled processed foods, including packaged beef jerky, bottled mild salsa, and bottled tart cherry juice. These products were chosen due to their popularity with stakeholders and the availability of product inputs in the region. The analysis focuses on common specialty product labels, including organic, grass-fed, and non-GMO.

Study data were collected via a 2024 online survey of consumers across the U.S. West in which respondents participated in choice experiments. Data were analyzed using product-specific random parameter logit (RPL) models. Results indicate low respondent overall familiarity with the examined specialty labels, although they consumed local- or organic-labeled foods frequently. The highest valued single labels were grass-fed for beef jerky and organic for tart cherry juice and mild salsa. Depending on the product, respondent willingness to pay was \$1.60–\$4.60 higher for a dual-labelled product over the single-labelled product. The grass-fed and local label combination was most valued for beef jerky, and the organic and non-GMO label combination for the other two products. These findings suggest that product-specific combination labeling strategies do enhance consumer WTP and offer food industry stakeholders a pathway to enhance product differentiation and competitiveness. Production cost differences were not examined.

Methods

Study data were collected via an online survey conducted via Qualtrics in the summer of 2024, where 1,150 valid responses were obtained from residents of 13 U.S. Western states and three territories. The survey included questions related to respondent sociodemographics, familiarity and attitudes toward each of the specialty labels employed, past consumption of specialty-labeled foods in general, and consumption and spending related to the three examined products. The survey also included hypothetical choice experiments for three processed products. Each respondent was randomly assigned to complete the experiment for two of the three products, thus completing 12 choice tasks per product, or 24 in total. Each choice task consisted of an opt-out option and two product alternatives, which varied in the labels presented, and price (four levels). To determine product price levels, we observed average prices online for two major grocery chains operating in the U.S. West in 2024. Then, a 50% discount and 100% premium was applied to the price averages to obtain the four price levels for each product (Caputo et al., 2018; Van Loo et al., 2018). The processed products included an 8 oz. package of beef jerky ($9.99; $13.99; $17.99; $21.99), a 32 oz. bottle of tart cherry juice ($3.99; $6.99; $9.99; $12.99), and a 16 oz. bottle of mild salsa ($1.49; $3.99; $6.49; $8.99).

The choice experiment data were analyzed using three product-specific RPL models. For example, for the beef jerky product, the utility function of respondent *n* associated with alternative *i* in choice scenario *t* is then

$$U_{nit} = ASC_{n,NoBuy} + \beta_{price} Price_{nit} + \beta_{n,organic} Organic_{nit} + \beta_{n,grassfed} Grassfed_{nit} + \beta_{n,local} Local_{nit} + \beta_{n,organic\times grassfed} Organic \times Grassfed_{nit} + \beta_{n,organic\times local} Organic \times Local_{nit} + \beta_{n,grassfed\times local} Grassfed \times Local_{ni} + \varepsilon_{nit}, \quad (1)$$

where $ASC_{n,NoBuy}$ is an alternative-specific constant for the opt-out alternative; $Price_{nit}$ is the price of the product; $Organic_{nit}$, $Grassfed_{nit}$, $Local_{nit}$, and their interactions are dummy variables equal to 1 when the labels and their combinations are present and 0 otherwise; ε_{nit} is unobserved utility, assumed to be *i.i.d.* type I extreme value; and β coefficients measure marginal effects on overall utility. Except for the price, all β coefficients were allowed to vary across respondents following a normal distribution $f(\beta_n \mid \theta)$. The parameters of each distribution—mean and standard deviation—were estimated. If the standard deviation was statistically insignificant for any label or their interaction term, we restricted the respective standard deviation coefficient to 0 (i.e., assuming fixed preferences) and re-estimated the model. We estimated similar models and followed the same process for the tart cherry juice and salsa products, while replacing the *grass-fed* label with *non-GMO* label in the utility function.

Results

Table 1 summarizes respondent sociodemographics. The largest share of respondents were 35 to 54 years old (37%), female (65%), Caucasian (68%), and employed (58%). Quotas used in the data collection process required responses representative of regional demographics for income,

education level, and age. Table 2 shows that respondent familiarity with the examined specialty labels was low and similar across labels. Half of the respondents were not at all or only slightly familiar with the labels, and only a quarter of the respondents claimed to be very or extremely familiar with the labels. However, Table 2 also shows that respondents consumed organic and locally labeled products frequently. Further, respondents often consumed and were most familiar with mild salsa and were least familiar with tart cherry juice (see Table 3). Per purchase, respondents spent the most on beef jerky ($13.63) and the least on tart cherry juice ($9.15), not accounting for unit size and pricing.

Table 1. Sample Sociodemographics

Characteristic	Coding	Mean
Age	1 = 18–34, 2 = 35–54, 3 = 55–64, 4 = above 64	2.26
Female	1 = female, 0 = male	0.65
Caucasian	1 = yes, 0 = no	0.68
Children under 18	1 = yes, 0 = no	0.37
Education	1 = middle school, 2 = some high school, 3 = high school/GED, 4 = associate's degree/some college, 5 = bachelor's degree, 6 = graduate degree or higher	4.17
Employed	1 = yes (full- or part-time), 0 = no	0.58
Income	1 = < $10,000, … 6 = $50,000–$59,999, 7 = $60,000–$69,999, … 12 = $150,000 or more	6.75
N		1,150

Table 2. Labeled Product Experience

Label	Label Familiarity*	Consumption Frequency**
Organic	2.66^{ab}	3.11^{a}
Local	2.66^{ab}	3.17^{a}
Non-GMO	2.64^{a}	3.01^{b}
Grass-fed	2.68^{b}	2.85^{c}

Notes: *1 = not at all familiar, 2 = slightly familiar, 3 = moderately familiar, 4 = very familiar, 5 = extremely familiar

**1 = never, 2 = once a month or less, 3 = several times a month, 4 = once a week, 5 = several times a week

Same letter (per column) indicates that the means are not significantly different at the 10% level or better.

Table 3. Product Consumption and Spending Habits

Product	Consumption Frequency*	Spending per Purchase
Packaged beef jerky	2.40^{a}	$\$13.63^{a}$
Bottled tart cherry juice	1.88^{b}	$\$9.15^{b}$
Bottled medium salsa	2.85^{c}	$\$10.75^{c}$

Notes: *1 = never, 2 = one serving a month or less, 3 = several servings per month, 4 = several servings per week, 5 = at least one serving per day

Same letter (per column) indicates that the means are not significantly different at the 10% level or better.

Table 4 provides the results of the three product-specific RPL models. The positive and significant coefficient estimates for the individual labels indicate that respondents derive positive utility from each label when presented alone, which is reflected in their positive WTP values (see Table 5). But relative preferences for individual labels varies by product. The organic label is valued most among the examined labels for tart cherry juice ($3.65) and salsa ($3.12), but for beef jerky, WTP for the organic label ($4.07) was not significantly different from the other two labels. The significant standard deviations for the individual labels also show that the preferences for the individual labels are not fixed but vary by respondent.

Table 4. RPL Model Coefficient Estimates

	Beef Jerky		Tart Cherry Juice		Mild Salsa	
Coefficient	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Price	-0.20***	-	-0.26***	-	-0.31***	-
Organic	0.83***	1.21***	0.96***	1.00***	0.96***	1.01***
Grass-fed	0.91***	1.09***	n/a	n/a	n/a	n/a
Non-GMO	n/a	n/a	0.70***	0.90***	0.81***	0.85***
Local	0.86***	0.79***	0.73***	0.76***	0.72***	0.72***
Organic × Grass-fed	0.04	0.27**	n/a	n/a	n/a	n/a
Organic × Non-GMO	n/a	n/a	0.06	0.31***	-0.04	-
Organic × Local	-0.30***	-	-0.25***	-	-0.21***	-
Grass-fed × Local	0.03	-	n/a	n/a	n/a	n/a
Non-GMO × Local	n/a	n/a	0.11**	-	0.03	-
Opt-out	-5.55***	4.13***	-4.54***	3.95***	-4.00***	3.16***
Log-likelihood	-11,165		-11,675		-12,129	
Prob > chi2	0.000		0.000		0.000	

Note: Double, and triple asterisks (**, ***) denote significance at the 5% and 1% level, respectively.

Table 5. Willingness-to-Pay Estimates

Label	Beef Jerky	Tart Cherry Juice	Mild Salsa
Organic	$4.07***^{a1}	$3.65***^{d1}	$3.12***^{h2}
Grass-fed	$4.47***^{a}	n/a	n/a
Non-GMO	n/a	$2.67***^{e3}	$2.63***^{i3}
Local	$4.23***^{a4}	$2.77***^{e5}	$2.35***^{i6}
Organic × Grass-fed	$8.73***^{b}	n/a	n/a
Organic × Non-GMO	n/a	$6.55***^{f7}	$5.61***^{j8}
Organic × Local	$6.81***^{c9}	$5.48***^{g10}	$4.76***^{k11}
Grass-fed × Local	$8.86***^{b}	n/a	n/a
Non-GMO × Local	n/a	$5.85***^{g12}	$5.08***^{k13}

Notes: Triple asterisks (***) denote significance at the 1% level.
Within product comparison: Same letter indicates that the means are not significantly different at the 10% level or better. Across product comparison, per label: Same number indicates that the means are not significantly different at the 10% level or better.

The interaction term coefficients in Table 4 show that respondents typically do not derive additional utility from label combinations. An exception is the combination of the non-GMO and local labels on tart cherry juice, where the positive interaction indicates the labels complement each other, and thus, respondents are willing to pay more than the sum of their WTP for the labels alone. The negative interaction term for the organic and local labels across all three products indicates that respondents perceive the labels as substitutes, but respondent WTP for the combination of the organic and local labels is higher than WTP for each label alone. Additionally, standard deviations demonstrate the low variability or homogeneous perceptions among respondents concerning the combination of the organic and local labels.

For the remaining label combinations, the insignificant coefficient estimates for the interaction terms indicate that the labels are independent and their WTP is additive. But if the standard deviation is non-zero (organic and grass-fed on beef jerky and organic and non-GMO on tart cherry juice), them some respondents view the labels as complementary and others as substitutes. Overall, WTP estimates in Table 5 show that for beef jerky, respondents were willing to pay most for the combination of the grass-fed and local labels ($8.86). The combination of the organic and non-GMO labels was most valued for both tart cherry juice ($6.55) and salsa ($5.61).

Conclusions

We examined consumer willingness to pay for three specialty-labeled processed food products—beef jerky, tart cherry juice, and mild salsa. Our focus was to compare respondent WTP for single- and dual-labeled products to determine whether consumers value products with multiple labels over single-labeled products. We found that while dual-labeled products did not boost respondent WTP beyond the sum of their WTP for the single labels, respondent WTP for dual-labeled products was higher than for single-labeled products. However, valued label combinations differed by product such that for beef jerky, the combination of the grass-fed and local labels was most valued. For tart cherry juice and salsa, the combination of the organic and non-GMO labels was most valued—a strange result, given that organic and non-GMO are redundant, in that organic products must also be non-GMO. However, this finding is in line with research showing that consumers will pay premiums for products with redundant or superfluous labels (Wilson and Lusk, 2020). Across all products, respondents considered the organic and local labels as substitutes. For the other label combinations, respondents exhibited heterogeneity, meaning some viewed the labels as complementary, while others saw them as substitutes, similar to that described by Papoutsi (2023).

In summary, this study provides evidence that consumers value specialty labels, including organic, local, non-GMO, and grass-fed on processed products and are willing to pay a higher premium for dual-labelled products. Thus, producers and food processors may benefit from using multiple labels on processed foods, taking into account product-specific differences. However, the costs (record-keeping, inspection fees, packaging, etc.) associated with placing multiple labels on food products should be considered to fully understand which label combinations might maximize profits for food industry stakeholders. Finally, this study was conducted in the U.S. West, and thus,

the results may not apply to other regions of the United States nor those outside of the United States.

Acknowledgements

This research was supported by the Utah Agricultural Experiment Station, Utah State University, and approved as journal paper number #9946. Financial support was also provided by a grant/cooperative agreement from the U.S. Department of Agriculture (USDA) Agricultural Marketing Service. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the USDA.

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