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Southern vegetable buyers' preferences for cherry tomatoes based on production practice and detailed information on location of production

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Project title: Economic Benefits and Marketing Implications of Co-Labeling Strategies for Small Organic Producers

Acknowledgement of partners

Professional organizations:

- Athens Land Trust
- Augusta Locally Grown
- Georgia Organics

Growers:

- Crystal Organic Farm
- White Hills Farm
- Adderson Inc.
- Little Rose Farm

- Jones Creek Farms
- Lola's Organic Farm
- Brown's Place Farm
- J and L Farm and Stables
- Byne Blueberry Farms
- Rodgers Greens and Roots (RGR)
- Hearts of Harvest Farm

Agenda

- Introduction
- Methodology
- Results
- Conclusion

Introduction

Research objectives

- **To estimate consumers' perceptions, intention to purchase and willingness to pay** using several co-labeling strategies and to determine resulting market segments. These scenarios will serve as inputs for analytical approaches in the third objective.
- **To evaluate communication content effectiveness** in conveying sustainable values for various labels (i.e. Georgia Organics, Georgia Grown and other specific “locally grown” programs), to determine market coverage effectiveness in terms of direct marketing channels accessed (i.e. farmers' markets, CSAs, and online), and to gauge geographical reach (within Georgia and surrounding states).
- **To determine comparative net economic returns** that producers may realize under co-labeling strategies and for different produce (entreprise budget, projections and simulations).

Expected outcomes for Objective 1

1. A further understanding of consumers' perceptions and interpretation of the information conveyed by several co-labeling strategies.
2. Increased knowledge about consumers' intention to purchase attached to these co-labeling strategies.
3. The economic value and willingness to pay of consumers for various food labels will be determined.
4. Identification of relevant socio-demographic consumer profiles that Georgia producers, especially small organic farmers, could identify as their target market.

Literature background

- Buyers' preferences
- Certification of production practice, e.g., USDA certified organic
- Origin, e.g., locally grown
- Claims, e.g., naturally grown

On-going debate:

- substitution or complementarity?
- WTP dynamic if co-labeling?

Methodology

Methodology

- Assessing buyers' **preferences for co-labeling strategies** based on the association of a production practice and certification (USDA Organic and Certified Naturally Grown) and six different production locations (“grown in my metro area or county” to “imported”).
- Focusing on **pint baskets of cherry tomatoes** since these are popular items among purchasers of fresh vegetables.
- **Average prices** for the different production labels were calculated based on observed data online and in local stores, at farmers markets and supermarkets which represent the typical place of purchase. A 12.5% rate was applied to make prices vary around the average for each production label.
- **Using a choice experiment with 1820 respondents across six southern states** (Georgia, Alabama, Florida, N Carolina, S Carolina, Tennessee). The design was established using SAS (mkt commands) and maximizing D-efficiency. The 36 choices were then divided in 3 blocks in order to limit respondent fatigue.



Choice experiment attribute levels

Attribute	Levels
Production practice	USDA Organic (alternative 1), Certified Naturally Grown (alternative 2), Unknown production practice (alternative 3)
Location of production	Grown in my metro area or county, Grown in a nearby metro area or county, Grown in my state, Grown in a neighboring state, Grown in the USA, Imported
Prices	Organic: \$3.75, \$4.38, \$5.00, \$5.63, \$6.25, \$6.88 CNG: \$3, \$3.5, \$4, \$4.5, \$5, \$5.5 UPP: \$2.25, \$2.63, \$3.00, \$3.38, \$3.75, \$4.13



Choice experiment sample

In the following section, you will be asked to evaluate several options when buying a **pint of cherry tomatoes**.



You will be presented **12 sets of 4 different options**. Each option is a combination of different **production practices, origins of production and prices**. Here is an example:

Which of the following option would most likely correspond to your preference when purchasing a pint of cherry tomatoes?

Production practice:



Origin: Grown in a nearby metro area or county

Price: **\$4.38**



Production practice:



Origin: Imported

Price: **\$4**



Production practice:

UNSPECIFIED

Origin: Grown in the USA

Price: **\$3.38**



I would choose **NONE** of these.



For each set presented to you, please indicate the choice that you would likely make in a **real purchasing situation** if all these choices were available to you at the same time. Also consider your past purchasing and budget limitations in making your decision.



Profile of Respondents

- Purchase of F&V
 - 70.2% at a major supermarket
 - 58.3% at grocery stores
 - 27.9% at farmers' market
 - 6.4% online farmers' market
 - 3.9% CSA
 - 11.2% grow their own produce
- Expenses on F&V
 - 75.3% primary shoppers and 19% shared equally
 - 68.9% purchase less than \$50 per week and per household
- Frequency of USDA Organic purchase
 - 32.7% purchase once a week and 14.9% more than once a week



Profile of Respondents (2)

Age	All 6 states
1923 – 1964 (Silent and Boomers)	24.6%
1965 – 1980 (Gen X)	22.7%
1981 – 1996 (Gen Y)	37.0%
≥ 1997 (Gen Z)	15.7%
Gender	
Male	41.9%
Female	57.6%
Non-binary	0.4%
Prefer not to say	0.1%
Ethnicity	
White/Caucasian	72.1%
African American	21.0%
Hispanic or Latino	5.3%
Asian	3.4%
Native American	1.9%
Native Hawaiian or Pacific Islander	0.4%
Other	1.0%

Education level	
Less than high school diploma	3.7%
High school diploma or GED	22.4%
Some college	20.9%
2-year college degree	11.4%
4-year college degree	25.3%
Master's degree	12.7%
Doctoral degree	1.6%
Professional degree (JD, MD)	2.1%
Income	
Less than \$50,000	34.9%
\$50,000 - \$99,999	36.5%
\$100,000 - \$149,999	16.6%
More than \$150,000	7.7%
Prefer not to answer	3.9%
Living area	
Rural	29.5%
Suburban	50.3%
Urban	20.2%

Model specification

Using Bayesian Mixed Logit model, we derived the respondent-specific posterior distribution of the part worth associated with each production location and regressed each of those against demographic indicators.

$$U_{njt} = x_{njt}\beta_n + \varepsilon_{njt},$$

where x is a $1 \times k$ vector of attributes, ε_{njt} is iid extreme value, and for the random coefficients we have $\beta_n \sim N(b, D)$. Maximum utility is implied by the observed choice $y_{nt} = i$ if and only if $U_{nit} > U_{njt}$ for all $j \neq i$.

Results

Bayesian Mixed Logit Regression Results

	b		Diagonal elements of D	
	Mean	<u>StDev</u>	Mean	<u>StDev</u>
Price	-0.6326	0.0152		
Organic	1.6715	0.0769	6.3453	0.3593
CNG	1.9869	0.0604	3.6438	0.1992
Import	-0.9781	0.0565	1.5595	0.1642
Near-State	0.1319	0.0344	0.0919	0.0293
MyState	0.2542	0.0363	0.1630	0.0434
Near-Area	0.3447	0.0372	0.1175	0.0421
My Area	0.2544	0.0388	0.3060	0.0707

- Premium for CNG: \$3.14
- Premium for Organic: \$2.64
- Substitution?

Estimated variation of individual partworths

	Mean	StDev	Share<0
Organic	1.6995	2.5132	0.2527
CNG	2.0147	1.9239	0.1480
Import	-0.9657	1.2328	0.7802
Near-State	-0.1340	0.3026	0.6675
MyState	0.2512	0.4009	0.2662
Near-Area	0.3474	0.3482	0.1595
My Area	0.2615	0.5538	0.3187

- Wide variation of individual assessments (StDev > |Mean|)
- Negative partworths:
 - 25% for Organic
 - 15% for CNG
- Higher value on close geographic location

Sample profiling based on choice pattern

% of respondents	Selected alternative within choice survey
2.7%	100% Organic
7.6%	100% CNG
1.4%	100% UPP
0.3%	100% Opted out
45.5%	Mainly chose Organic or CNG
42.5%	Choice varied between Organic, CNG, UPP and opt out.

Three main profiles:

- Organic and CNG are substitutes (45.5%)
- No definite preference for a production practice (42.5%)
- Strong preference for a practice (12%)



Regression of partworths using demographic variables

- **Older generations** put more value on cherry tomatoes that were grown within their county or their state.
- Respondents with a **higher level of education** generally put more value on cherry tomatoes grown at the county or neighboring county level (and less if the product is imported).
- Households spending the most on fruits and vegetables are associated with a **preference for imported** cherry tomatoes (compared to grown in a neighboring county).
- The **value of USDA organic** cherry tomatoes is strongly associated with higher amounts of purchase and an urban location of residence. Younger respondents tend to value organic more than older ones.
- Residents in rural areas and respondents with a higher level of education seem to put **value on CNG** cherry tomatoes, even more so than for organic types.



Conclusion

On-going discussion: **WTP and role of information through labeling/co-labeling:**

- A **combination of indication** of “local” origin and a well-known production practice certification such as CNG or USDA Organic seem to translate into higher premiums.
- **Younger generations** living in an urban area with a higher disposable income favor an origin within their state borders combined primarily with CNG followed by USDA Organic.
- **Higher quality of information on production practices** is also recommended to increase the buyers’ knowledge and trust of these practices.





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Any questions?

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