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UNIVERSITY of FLORIDA

FOOD & RESOURCE  
ECONOMICS  
DEPARTMENT

**THE US CONSUMERS' WILLINGNESS TO PAY FOR  
BEST MANAGEMENT PRACTICE LABELS**

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# Introduction

- Best Management Practices (BMPs)
  - nutrient management: Soil need-based fertilizer application
  - irrigation Management: upgrade irrigation system
- Barriers to adopt BMPs among small and medium farms
  - additional costs- equipment upgrades, additional infrastructure, paperwork, or reduction of planted/harvested acres (Shaffer & Thompson, 2013)
  - Farm's profitability

# Objectives

- What is the consumers' WTP for the BMP label?
- How information framing affects the WTP of the BMP labels?

# BMP labels

- Following criteria are used to develop the BMP label (Czarnecki et al., 2018)
  - Content: positive environmental information
  - Source: government certification
- Three BMP labels to measure the consumers' preference for BMP labels



# Choice Experiment

- Attributes and levels in the CE

Attribute	Level
<b>Best Management Practices (BMPs)</b>	No label ( <b>base</b> )
	Label 1
	Label 2
	Label 3
<b>Organic</b>	No label ( <b>base</b> )
	USDA Organic
<b>GAP &amp; GHP (Food safety)</b>	No label ( <b>base</b> )
	USDA GAP & GHP
<b>Origin</b>	Product of your state
	Product of USA ( <b>base</b> )
<b>Price (USD/lb.)</b>	1.99, 3.49, 4.99, 6.49



# Choice Experiment

- 10 choice sets
- 4 choices with “None ”
- Bayesian efficient design

Which strawberries would you pick in grocery shopping?

 <p>Certified BMP Promoting Sustainable Water EPA USDA ORGANIC Product of USA \$4.99/ 16 Oz.</p>	 <p>Certified BMP Preserving Water Quality EPA USDA ORGANIC USDA GAP &amp; GHP AUDIT PROGRAM Product of Your State \$6.49/ 16 Oz.</p>	 <p>Certified BMP Promoting Sustainable Water EPA USDA GAP &amp; GHP AUDIT PROGRAM Product of Your State \$3.49/ 16 Oz.</p>	<p>None of these</p>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Information Treatment

Information treatment message	Information treatment groups			
	Positive	Negative	Balanced	Control
Fertilizer and pesticides use trend in the USA	✓	✓	✓	✗
Importance of agricultural inputs on agricultural production process	✓	✗	✓	✗
Impact of agricultural input losses on environment	✓	✓	✓	✗
Negative consequences of agricultural runoff	✗	✓	✓	✗
A notice showing prohibition of recreational activities in a lake	✗	✓	✓	✗
Potential solution- BMPs and success evidence	✓	✓	✓	✗

# Data

- Online survey by Qualtrics: nationwide consumer panel in May 2021.
- Sample selection criteria:
  - adult (18 years old or higher)
  - primary grocery shopper (shop more than 50% of the time)
  - purchased strawberries in the last six months in grocery shopping.
- Quality check
  - eliminate the respondents with satisficing behavior using trap questions
- Total valid response: 799
  - positive: 200
  - negative: 192
  - balanced: 192
  - control: 215

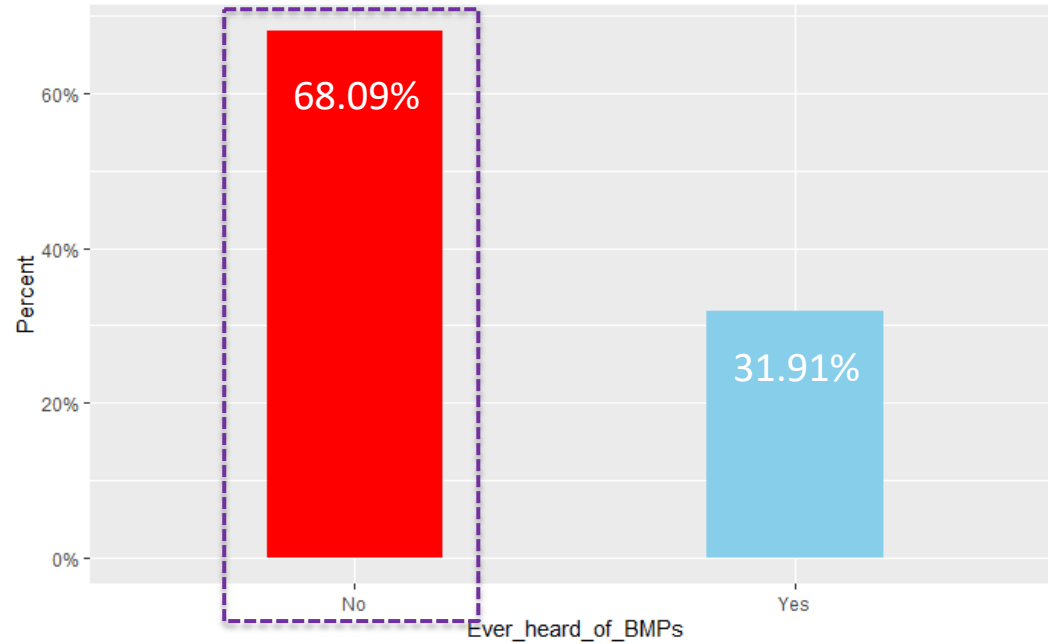


# Model Selection

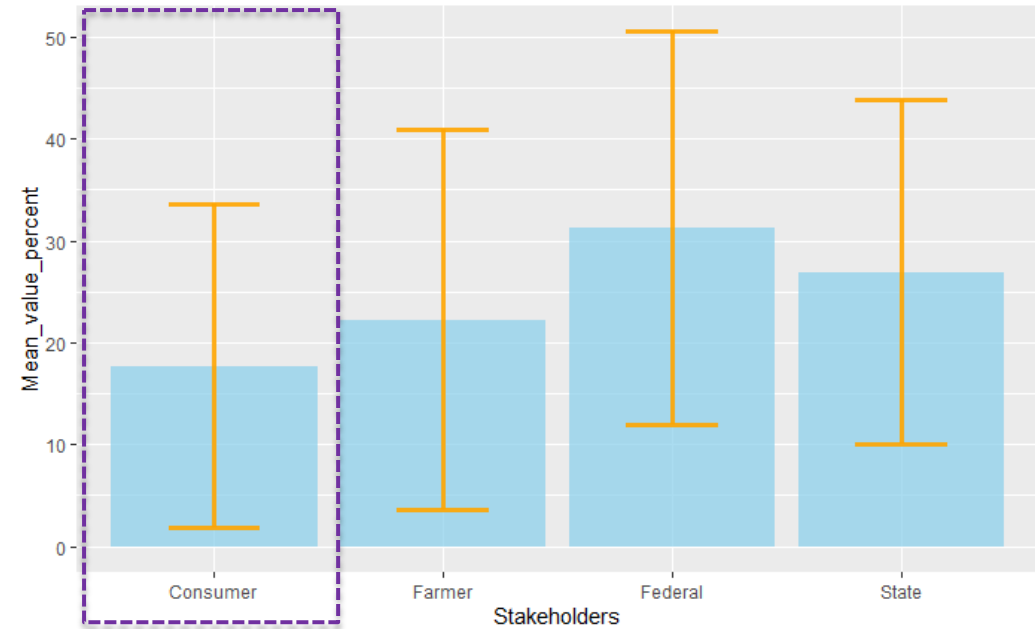
$$U_{ijt} = V_{ijt} + \varepsilon_{ijt} = \beta_i' X_{ijt} + \varepsilon_{ijt}; i=1\dots N; j=1\dots J; t=1\dots T$$

- **Preference Space**
- Mixed logit: heterogenous preferences across respondents
  - Non-random parameters: Price
  - Random parameters: BMP, Organic, GAP &GHP, Origin, none
  - 1500 Halton Draws
- **WTP Space**
- GMNL-II: scale multinomial logit & mixed logit
  - Fixed parameters: Price=1, Gamma=0, Tau≠0
  - Random parameters: BMP, Organic, GAP &GHP, Origin, none
  - 1500 Halton Draws

# Results



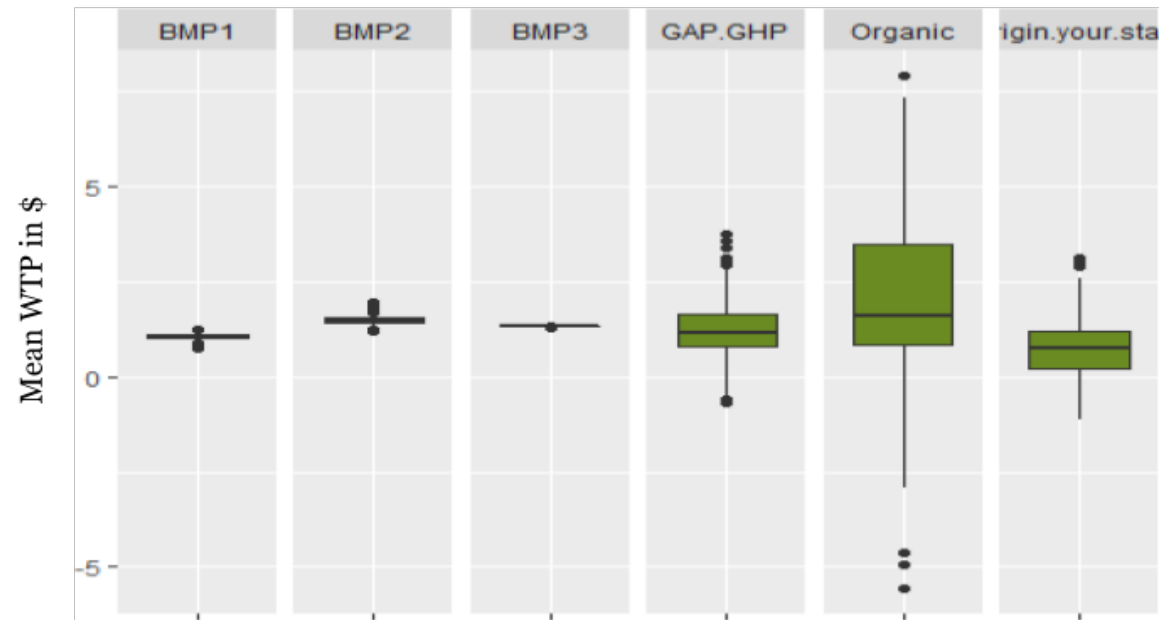
Knowledge of BMPs among Consumers



BMP cost sharing among stakeholders

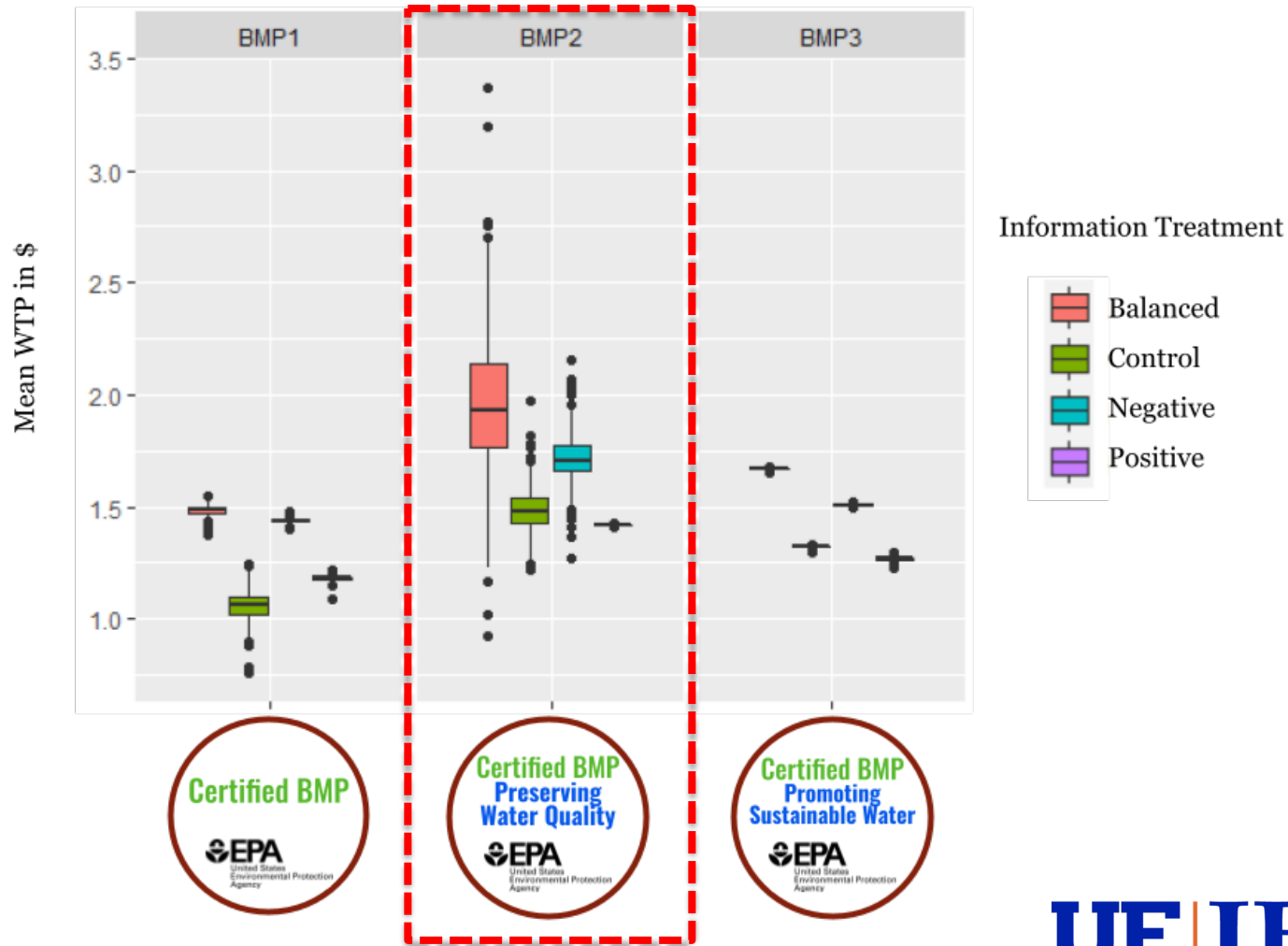
# Results: WTP Estimates-WTP Space

Mean WTP for the labels: Control Group



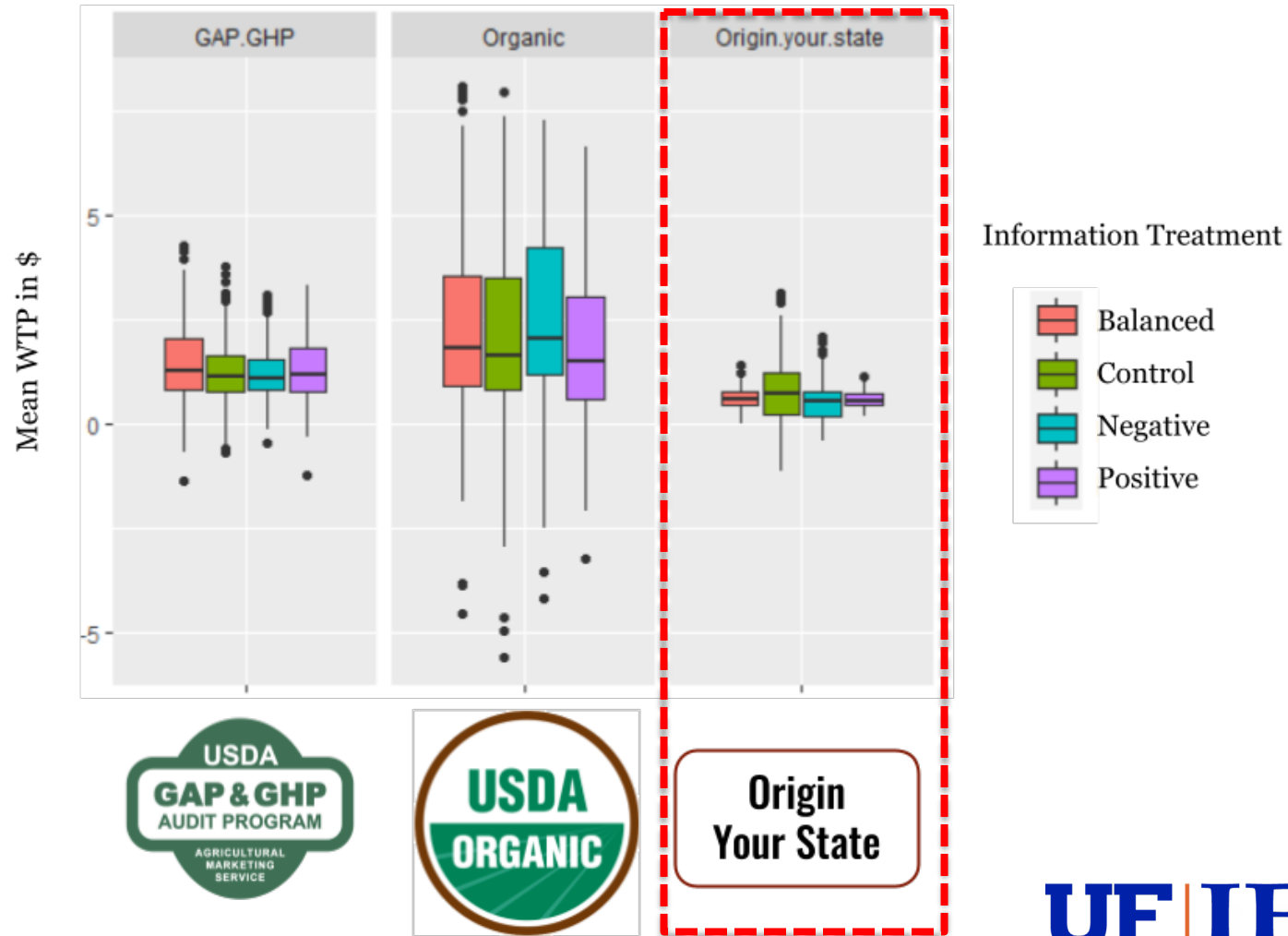
# Results: WTP Estimates-WTP Space

Mean WTP for the labels



# Results: WTP Estimates-WTP Space

Mean WTP for the other labels in CE



# Results: Factors affecting WTP of BMP label

Variable's name	Coefficients (Standard Error)
<b>Age</b>	<b>-0.00521**</b>
Income	0.002189
Female (Yes=1)	-0.00413
Married (Yes=1)	-0.00673
<b>Hispanic or Latino (Yes=1)</b>	<b>0.038026**</b>
Children in the HH (<18 years)	-0.00844
Total HH member	-0.0047
Education: Bachelor's or above (Yes=1)	-0.01492
<b>Knowledge</b>	<b>0.00934***</b>
Republican (Yes=1)	0.01814
Democrat (Yes=1)	0.025176
Environmental affinity	0.002301
Balanced (Yes=1)	0.4783***
Negative (Yes=1)	0.2421***
Positive (Yes=1)	-0.0669***
Constant	1.4625***

Note: Asterisks (\*, \*\*, \*\*\*) indicate 10%, 5%, and 1% statistical significance levels, respectively.

# Findings and Conclusion

- BMP label:
  - significant positive WTP
  - label 2 is the most preferred BMP label
- Information Treatment:
  - balanced information- highest WTP of BMP labels
  - information attenuates the local preference: consumers care about the water quality across USA
- Agricultural and environmental literacy is important



# Thank You!

# Questions?

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