Consumer Willingness-to-pay for Improved Safety of Locally-Grown Fresh Produce

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West Virginia University
Food Distribution Research Society 2020 Virtual Annual Meeting

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Introduction: Increasing popularity local produce

- 84% of survey respondents said their shopping list includes local food; 70% of consumers purchase local veggies and 47% buy local fruits regularly (Forager Survey, 2018)
- 93% of respondents say they would buy more local food if more was available at stores and 75% of respondents would pay 20% more for local produce (Forager Survey, 2020)
- More than 60% of farmers market managers report increased annual sales, customer traffic, and repeat customers in the 2012 and 2013 seasons (USDA AMS, 2015).
- The national count of registered FM had increased from 2,863 in 2000 to 8,687 in 2017 (USDA AMS, 2018)

Introduction: Increasing popularity local produce

- In addition to farmers market, locally grown fresh produce is also sold in other **direct-to-consumer** (DTC) outlets: roadside stands, on-farm shops, CSA, etc.

Kroger brings the farm closer to the table

19 EXPERT COMMENTS

- Locally grown fresh produce also increasingly sold in conventional outlets: including supermarkets, supercenters, and health/natural stores

Wal-Mart reinforces its locally grown commitment

The Packer

May 17, 2011 10:28 PM

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Trend

Consumer perception of local food

- Purchasing local food supports the local farmers and communities (Smithers et al., 2008)
- Local produce require fewer resources to transport, more sustainable (Giampietri et al., 2016)
- Local produce are superior (higher quality, food safety, freshness) to the conventionally grown produce (e.g. Byker et al., 2012; Yu et al., 2017)

However, there is concern about food safety…

- Lettuce sold in FM found to contain more bacteria than the ones sold in grocery stores (Soendjojo, 2012).
- Li et al. (2017) surveyed farmers markets in WV and KY in 2015 and 2016, finding that 18.5% of peppers and spinach and 56.3% of cantaloupes contain *Salmonella*.
- There exists a positive relationship between the numbers of FM per capita and foodborne outbreaks (Bellemare et al., 2018)

Motivation

- FM and local produce are enjoying a growing customer base and playing an increasingly important role in local economies
- Foodborne illnesses associated with local produce may affect more people and result in higher social costs
- Ensuring the safety is essential for the continuing growth of the local foods sector

Motivation

- New technologies to improve food safety are being developed, but costly for farmers to adopt more restricted standards and more advanced production/processing methods

- For farmers to adopt these new methods, prices of their products need to increase to offset the added cost for improving food safety

- Need to evaluate consumer willingness to pay (WTP) for improved safety and identify relevant consumer groups for marketing strategies

Research Questions

- Do consumer perceptions of local fresh produce safety differ by purchase locations?
    - Results: Not much (High: Natural Stores = 3.82 out of 5 ; Low: DTC = 3.46 out of 5)
- Are consumers willing to pay more for safer locally grown fresh produce?
    - Preliminary results: Yes
- If so, how much more are they willing to pay?
    - Preliminary results: mean MWTP is approximately $2.8 for new wash method that reduces food safety risks
- Which types of consumers are willing to pay more?
    - In progress

Limitations of existing literature

- Few previous studies focus explicitly on local fresh produce
  - Only exception is Yu et al. (2018), who focus on ready-to-eat fresh-cut produce in FM, but not unprocessed local fresh produce and the ones sold in other locations
- Did not consider post-harvest washing practices that reduce food safety risks
- Did not examine whether WTP for attributes of local fresh produce vary by purchase location

Empirical method:

- $U_{n,i}$ is individual's (n) true utility from consuming option i;

$$U_{n,i} = V_{n,i}(\boldsymbol{X}_i) + \varepsilon_{n,i}$$

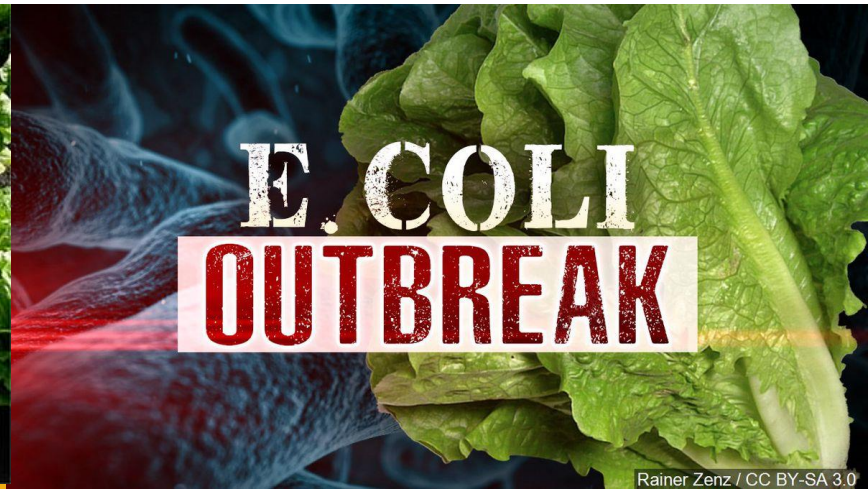
1) observable component: $V_{n,i}(\boldsymbol{X}_i)$, where $\boldsymbol{X}_i$ vector of attributes, including price
2) unobservable component: $\varepsilon_{n,i}$

- Assume linear utility function: $U_{n,i} = \boldsymbol{X}_i'\boldsymbol{\beta} + \varepsilon_{n,i}$, $\boldsymbol{\beta}$ vector of parameters
- Mixed Logit: Allow for decision makers to have different preferences
- Mean MWTP for a given attribute $= \frac{\partial V/\partial Attribute}{\partial V/\partial Price} = -\frac{\beta_{attribute}}{\beta_{price}}$

Empirical Method: Choice experiment

Study focus: romaine lettuce

- One of the most popular local fresh produce
- Available in most of the United States
- A significant number of outbreaks in recent years
    - The CDC reported that in 2000-2017, there were 316 foodborne outbreaks linked to contaminated **lettuces**, which resulted in 7,779 illnesses, 494 hospitalizations, and five deaths.



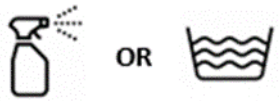
Choice experiment—Attributes for utility function

Pre-package

Non-packaged romaine lettuce

Packaged romaine lettuce

Post-harvest washing method



Usual wash method

New wash method with lower food safety risk

Purchase locations

1. Supercenter: e.g., Walmart, Target
2. Supermarket: e.g., Kroger, Safeway, ShopRite, Giant, Publix
3. Health/natural store: e.g., Whole Foods, Fresh Market, Trader Joe's
4. Local farmers market
5. Other direct-to-consumer (DTC) channels: e.g., roadside stands, on-farm shops, community-supported agriculture

Price per head: $1.5, $2, $2.5, $3

Choice experiment—survey setup

- Total possible combinations: 2 x 5 x 4 x 2 x 5 x 4= 1,600 scenarios
- Choose the design with the highest D-efficiency score (SAS) to reduce the number of scenarios
  - Efficient design has a “small” variance matrix

# of Blocks (versions of choice experiment)	5
# of Choice sets (choice sets each respondent respond to)	8

Below, two options for purchasing **locally-grown** romaine lettuce are presented. Which do you prefer?

Option 1	Option 2
Usual wash method	New wash method with lower food safety risk
Packaged	Non-packaged
Supermarket (Publix, Kroger, Safeway)	Other DTC (on-farm shop, roadside stand)
$1.50	$2.50

Your choice:

- Buy Option 1
- Buy Option 2
- Buy neither of the two

Survey Design

- Screening questions: > 18 years old, primary grocery shopper of the household
- Quota: match the demographics of the US population (18 years and older), including age, education, income
- Various validation questions throughout the survey to ensure the quality of responses
- Number of valid respondents: 514
- Qualtrics online survey panel, August 2020

age	count	percentage
18~24	51	9.9%
25~34	106	20.6%
35~44	122	23.7%
45~54	47	9.1%
55~64	97	18.9%
65 +	91	17.7%

Education	count	percentage
< High school	60	11.7%
High school graduate	144	28.0%
Some college	115	22.4%
AA degree	48	9.3%
Bachelor degree	95	18.5%
Graduate degree	52	10.1%

Income	count	percentage
<$10,000	54	10.5%
$10,000 to $24,999	67	13.0%
$25,000 to $49,999	91	17.7%
$50,000 to $74,999	101	19.6%
$75,000 to $99,999	58	11.3%
$100,000 to $149,999	77	15.0%
$150,000 to $199,999	37	7.2%
$200,000 +	29	5.6%

Perception of pathogen contaminations

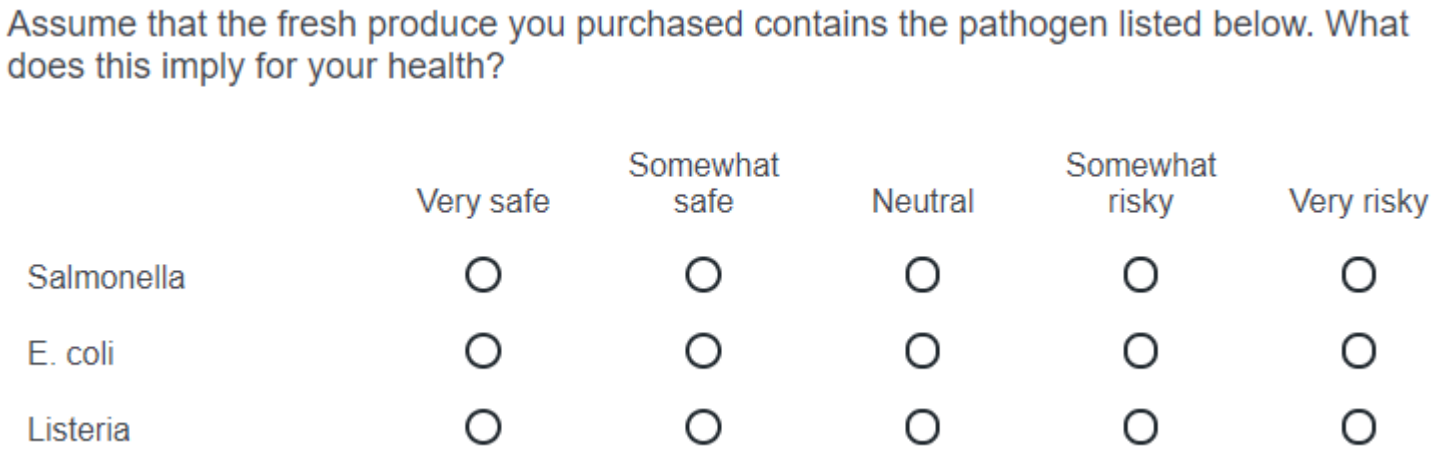
How likely or unlikely is it that the fresh produce you usually purchase contains the following pathogen?

	Very unlikely	Somewhat unlikely	Neutral	Somewhat likely	Very likely
Salmonella	○	○	○	○	○
E. coli	○	○	○	○	○
Listeria	○	○	○	○	○

Pathogen	Mean	Std Deviation
Salmonella	2.79	1.15
E. coli	2.83	1.15
Listeria	2.8	1.16

Notes: 1—very unlikely, 2—somewhat unlikely, 3—neutral, 4—somewhat likely, 5—very likely

Perception on health risk of each pathogen



Pathogen	Mean	Std Deviation
Salmonella	4.3	1.18
E. coli	4.35	1.13
Listeria	4.29	1.15

Notes: 1—very safe, 2—somewhat safe, 3—neutral, 4—somewhat risky, 5—very risky

On average, how **often** do you purchase **locally grown fresh produce** at the following outlets (including in-person & pick-up/delivery orders)?

	Never/Almost never	Sometimes	Often	Always/Almost always	Not sure if produce purchased is local or not
Supercenter (e.g., Walmart, Target)	○	○	○	○	○
Supermarket (e.g., Kroger, Safeway, ShopRite, Giant, Publix)	○	○	○	○	○
Health/Natural store (e.g., Whole Foods, Fresh Market, Trader Joe's)	○	○	○	○	○
Local farmers market	○	○	○	○	○
Other DTC (e.g., roadside stands, on-farm shops, community supported agriculture)	○	○	○	○	○

Summary of survey: Local produce shopping frequency

Location	Never/Almost never	Sometimes	Often	Always/Almost always
Supercenter	18.31%	31.60%	20.11%	24.42%
Supermarket	13.82%	26.21%	27.83%	26.57%
Health/Natural store	40.93%	24.24%	18.13%	11.85%
Local farmers market	25.31%	34.29%	21.72%	16.52%
Other DTC	40.22%	31.60%	14.00%	11.49%

Food safety perceptions for local produce at various purchase locations

Please rate each food outlet below in terms of how **safe or unsafe** you consider their **locally grown fresh produce**.

	Very unsafe	Somewhat unsafe	Neutral	Somewhat safe	Very safe
Supercenter (e.g., Walmart, Target)	○	○	○	○	○
Supermarket (e.g., Kroger, Safeway, ShopRite, Giant, Publix)	○	○	○	○	○
Health/Natural store (e.g., Whole Foods, Fresh Market, Trader Joe's)	○	○	○	○	○
Local farmers market	○	○	○	○	○
Other DTC (e.g., roadside stands, on-farm shops, community supported agriculture)	○	○	○	○	○

Location	Mean	Std Deviation
Supercenter	3.64	0.98
Supermarket	3.75	0.9
Health/Natural store	3.82	0.91
Local farmers market	3.79	1
Other DTC	3.46	1.05

Notes: 1—very unsafe, 2—somewhat unsafe, 3—neutral, 4—somewhat safe, 5—very safe

Preliminary Results: Mixed Logit & WTP

Mixed logit model			#of obs	12,336
			Prob > Chi2=	0
Variable	**Coefficient**	**Std. Err.**	**Z**	**P-value**
Price	-0.6636	0.0571	-11.63	0.0000
New wash method	1.8675	0.0961	19.44	0.0000
Pre-packaged	0.7262	0.0776	9.36	0.0000
Supermarket	0.7139	0.0983	7.26	0.0000
Health/natural Store	0.8016	0.1036	7.74	0.0000
Farmers Market	0.8233	0.0995	8.28	0.0000
Other DTC	0.5137	0.0964	5.33	0.0000

	New Wash Method	**Pre-packaged**	**Supermarket**	**Natural Store**	**Farmers Market**	**Other DTC**
Mean MWTP	2.8140	1.0943	1.0757	1.2079	1.2406	0.7739

Preliminary Conclusions

- In addition to FM and other DTC, a large number of consumers purchase locally grown fresh produce in conventional outlets
- Consumers on average consider locally grown fresh produce sold in different outlets of similar level of safety risks
  - Most safe—health/natural stores; least safe—other DTC
- Consumers consider fresh produce to be contaminated somewhat unlikely or neutral, but the health implication is severe once contaminated

Preliminary Conclusions

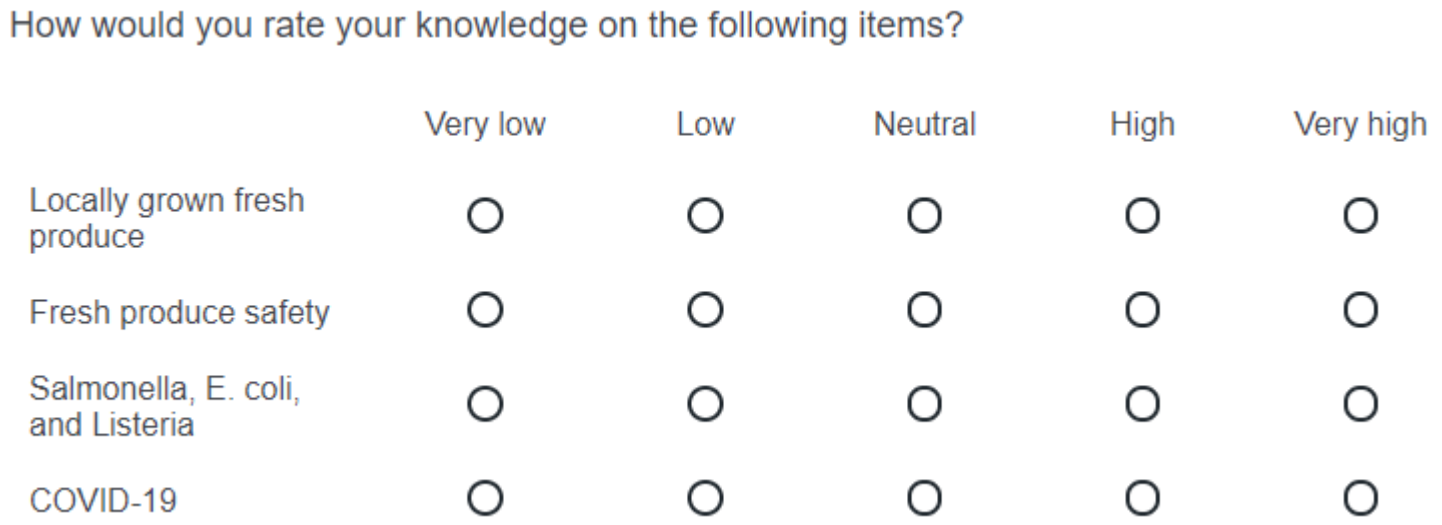
- Consumers are willing to pay more for a new wash method that reduces food safety risks on locally grown fresh produce: mean WTP = $2.8 per head for romaine lettuce
- They are willing to pay for more for pre-packaged romaine lettuce: mean WTP= $1.09 per head
- Compared to supercenter, consumers are also willing to pay more for locally grown produce sold in supermarkets (highest), farmers markets, health/natural stores, and DTC

Next Steps:

- **Alternative-specific WTP :** whether WTP for wash method varies with packaging and purchase locations → help farmers determine the most profitable combination between new wash method, packaging, and sale locations
- **Class-membership analysis:** Based on latent class model, perform class-membership analysis→ whether the respondents in each latent classes share common demographic characteristics, perceptions, and preferences observed in the survey
    - Which types of consumers are willing to pay more?
    - Help design marketing strategies to target specific group of consumers
- **Conduct cost-benefit analysis** for an emerging post-harvest washing method—three step wash

Thank you

Survey summary: Knowledge of local food & food safety



Topic	Very low	Low	Neutral	High	Very high
Locally grown fresh produce	3.05%	10.41%	36.45%	33.39%	16.70%
Fresh produce safety	2.87%	10.23%	36.09%	36.62%	14.18%
Salmonella, E. coli, and Listeria	4.85%	13.64%	36.98%	31.60%	12.93%
COVID-19	1.80%	3.77%	23.34%	41.47%	29.62%

Next Step (future work?)

Incorporate risk perceptions and risk attitudes into WTP

- Modify utility function to include consumer risk perceptions and risk attitudes
- Estimate different mean WTP for different levels of risk perceptions & attitudes

Next Step (future work for another paper?)

Incorporate risk perceptions and risk attitudes into WTP

Question	Option A (Low risk)	Option B (High risk)
1	82%	18%
2	78%	22%
3	78%	22%
4	67%	33%
5	59%	41%
6	43%	57%
7	38%	62%
8	30%	70%
9	27%	73%
10	0%	100%

Next Step (future work for another paper?)

Incorporate risk perceptions and risk attitudes into WTP

Assume that the fresh produce you purchased contains the pathogen listed below. What does this imply for your health?

	Very safe	Somewhat safe	Neutral	Somewhat risky	Very risky
Salmonella	○	○	○	○	○
E. coli	○	○	○	○	○
Listeria	○	○	○	○	○

- Use results from these two questions to measure ***risk perception related to local produce safety***

How likely or unlikely is it that the fresh produce you usually purchase contains the following pathogen?

	Very unlikely	Somewhat unlikely	Neutral	Somewhat likely	Very likely
Salmonella	○	○	○	○	○
E. coli	○	○	○	○	○
Listeria	○	○	○	○	○

Willingness to Pay a Premium for Domestically Produced Goat Meat in the United States

Mohammed Ibrahim & Nalini Pattanaik :Fort Valley State University

Benjamin Onyango: Missouri State University

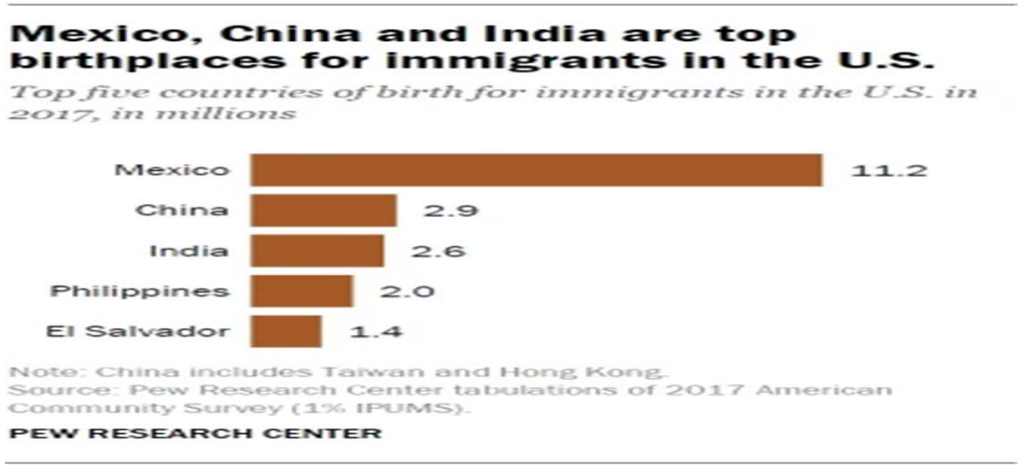
2020 FDRS Conference, October 13, 2020

One of the popular meats in the world

- Sixty - seventy percent of the world's population eat goat meat.
- Spanish goat was introduced into the United States by Spanish explorers
- Boer Goat, Savannah or Savanna Goat, Kiko goat, Myotonic goat etc.

INCREASING GOAT MEAT DEMAND

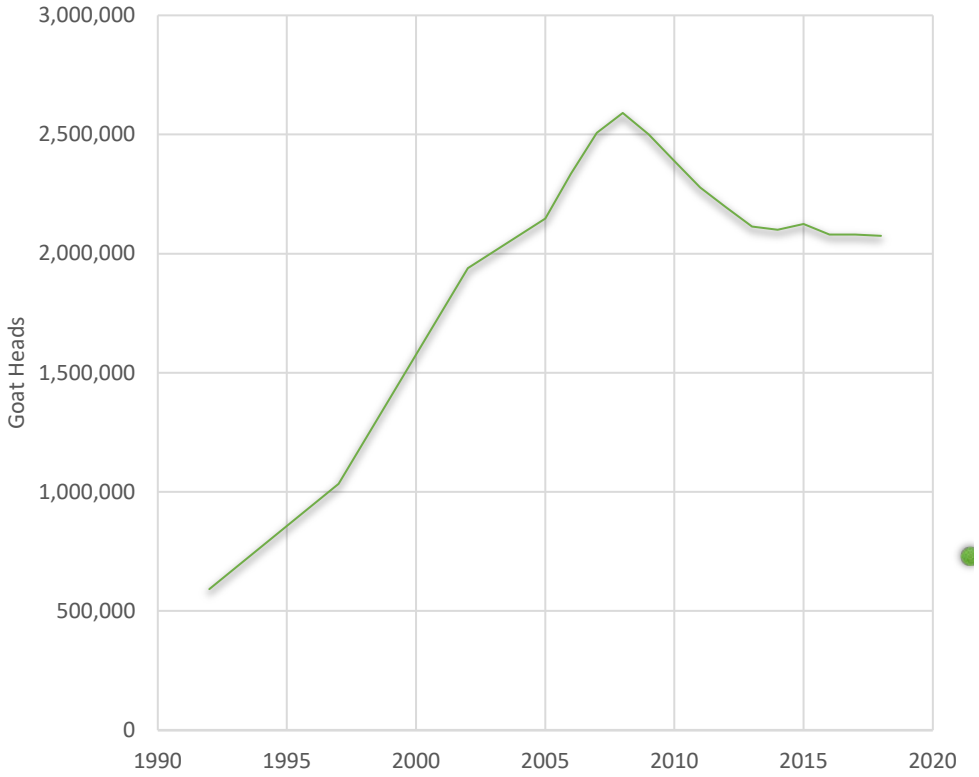
- Increasing ethnic population



- Desire for healthy diets

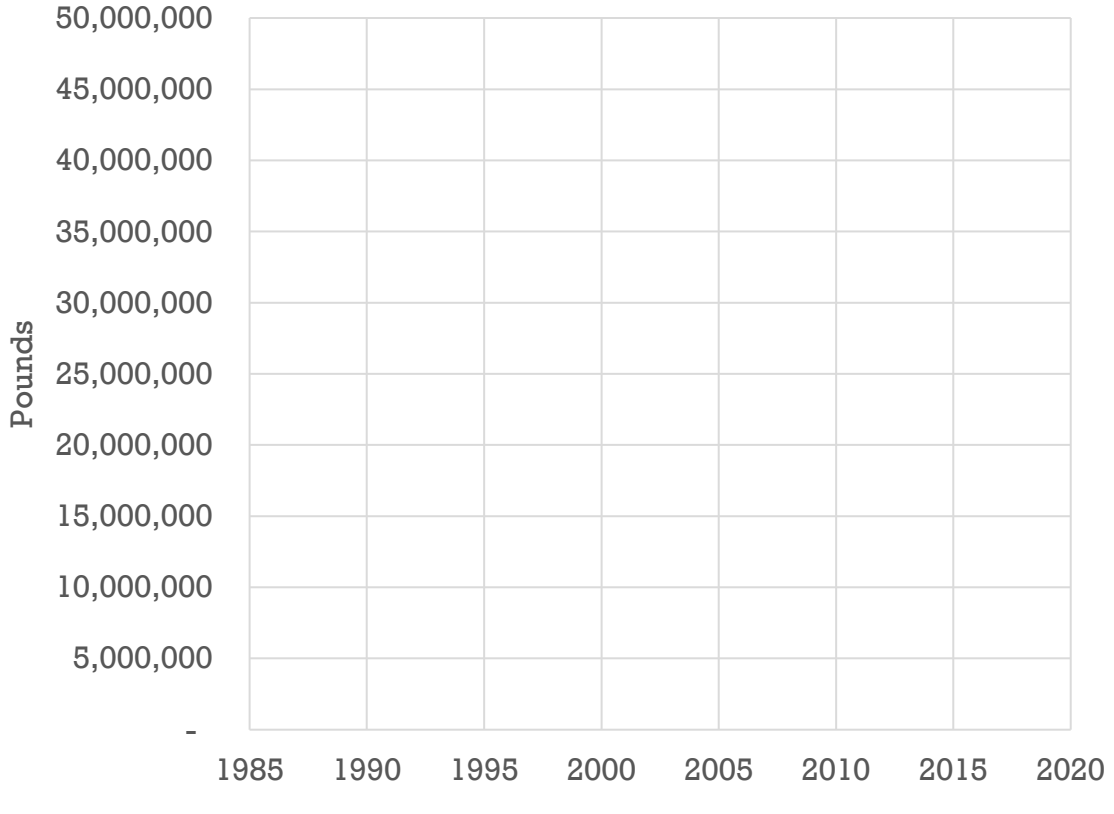
GOAT MEAT SHORTAGE: DEMAND - SUPPLY

US MEAT GOAT INVENTORY

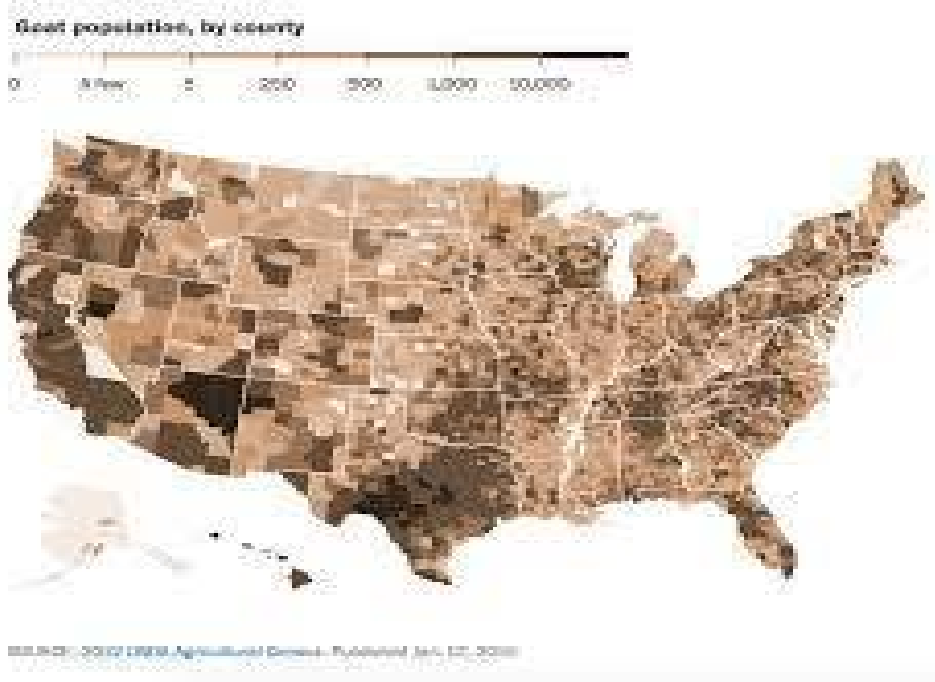


GOAT MEAT IMPORT

400,000- 500,000



Why Domestically produce?



- Benefits the environment
- Promotes a safer food supply
- Producers can tell how the food is grown
- Small scale operations
- Increasing market

DOMESTIC GOAT PRODUCERS/ GOAT INDUSTRIES

Who are the consumers?

Where are the markets?

When are the good times?

How to best sell the products?

How to compete with the cheaper imported meat?

OBJECTIVES

1.Determine the factors that influence the willingness to pay a premium price for domestically produced goat meat.

2. Examine consumers' willingness on how much more they would pay for the domestically produced goat meat than imported goat meat

SURVEY

- Consumers' survey in 2019
- 1201 respondents

Survey Design

"Have you or any of your family members ever tasted or eaten goat meat?"

Yes
58%

No
43%

"Suppose your area grocery store is giving out goat meat samples. Would you be willing to try it?"

Most were willing to try if it were readily available

Survey Design continued..

- *"Are you willing to pay more for domestic produced goat meat than imported goat meat?"*

Yes
53%

No
47%

Survey Design continued..

"How much more, in percent, would you be willing to pay?"

Percentage of respondents	More willing to pay, in percent	Percentage of respondents	More willing to pay, in percent
29	Exactly 0	4	55
61	At least 5	4	60
50	10	3	65
32	15	3	70
28	20	3	75
17	25	2	80
12	30	2	90
10	35	1	95
10	40	1	100
8	45		
8	50		
		100	Total

47

18

LOGISTIC MODEL

Willingness to pay more for ***domestic produced goat meat*** than ***imported goat meat***

VARIABLES

14

- Socio-Demographic Characteristics
- Consumer's attitudes

- Markets

Ethnic meat shops

Grocery stores/International Farmers markets

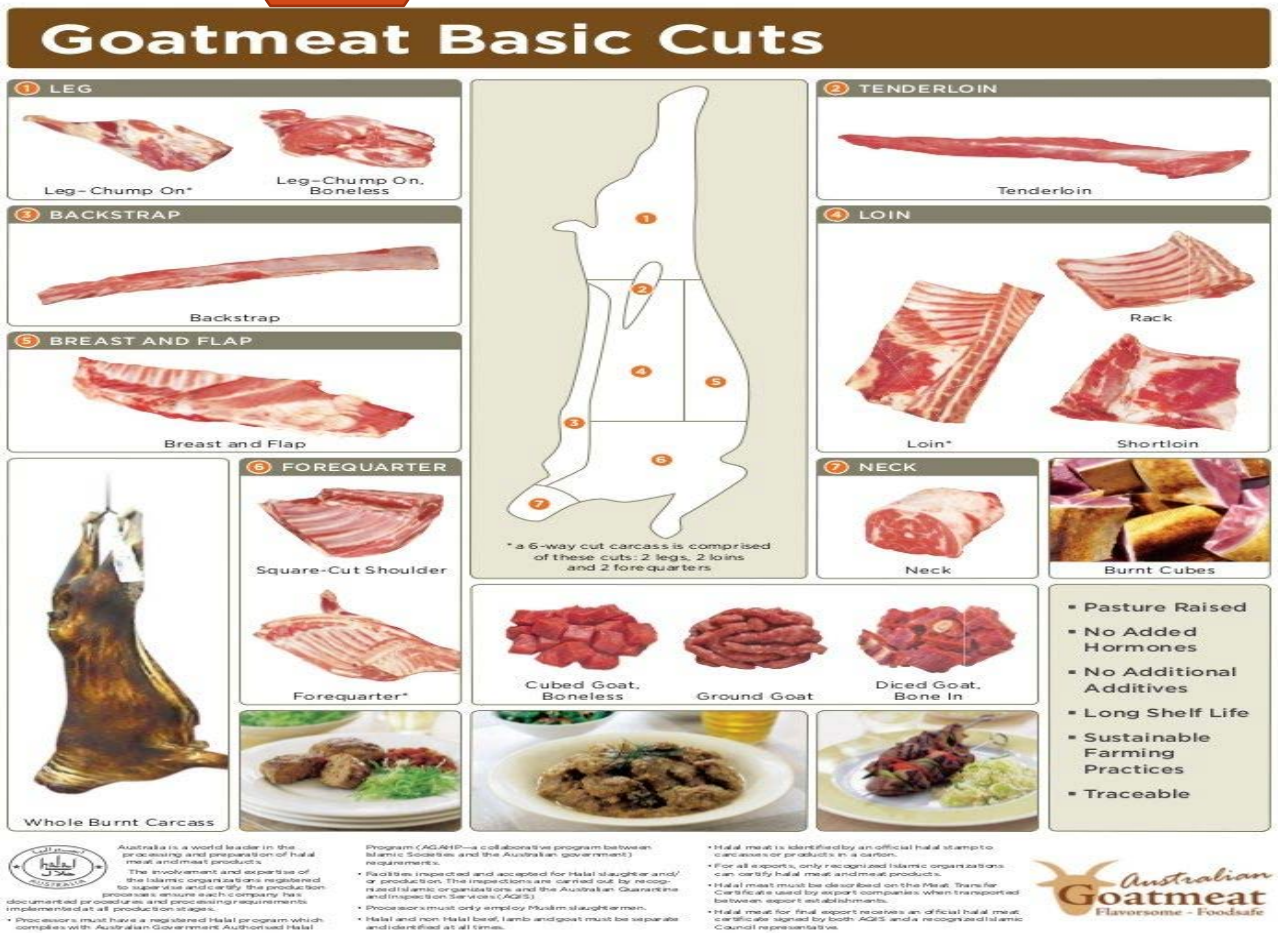
Direct from farmers

- Types of cuts

VARIABLES CONTINUED

- Type of Meat Cuts

1



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RESULT

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Parameter	Estimate	Standard Error	Pr > ChiSq
Intercept***	-2.329	0.421	<.0001
Hage/Younger**	0.376	0.153	0.014
Taster***	0.500	0.148	0.001
Buyer**	0.443	0.195	0.023
Cut -skin less***	0.462	0.141	0.001
Cut- skin on/burnt***	0.645	0.233	0.006
Whole***	-0.810	0.266	0.002
Ethnic meat shops ***	1.264	0.172	<.0001
Grocery stores/Farmers market ***	0.923	0.171	<.0001
Farmer ***	0.927	0.198	<.0001
P. Shopper***	0.896	0.197	<.0001
Edu	0.188	0.162	0.244
Income2	0.104	0.149	0.486
Income3	0.031	0.217	0.886
Race(Non-black)***	0.540	0.164	0.001
Ethnicity	0.375	0.233	0.107

*** indicates <0.01,
** indicates < 0.05
* indicates < 0.10

MARKETING STRATEGIES

Target Group: Young, Non-Black, Primary Shoppers

- *Providing value added/ready to eat products such as patties etc.*
- *Promoting health benefits of goat meat*

Target Group: Tasters, Buyers

- *Providing samples, recopies*

Table 1. Nutrient Composition of Goat and Other Types of Meat[1, 2]

Nutrient	Goat	Chicken	Beef	Pork	Lamb
Calories	122	162	179	180	175
Fat (g)	2.6	6.3	7.9	8.2	8.1
Saturated Fat (g)	0.79	1.7	3.0	2.9	2.9
Protein (g)	23	25	25	25	24
Cholesterol (mg)	63.8	76.0	73.1	73.1	78.2

[1] Per 3 oz. of cooked meat
[2] USDA Nutrient Database for Standard Reference, Release 14 (2001)

MARKETING STRATEGIES

Markets: Ethnic meat shops , Grocery stores/Farmers market , direct sales to consumers

- *Availability*
- *Convenience*
- *Fresh goat meat*
- *Promoting domestically grown produce*
- *By talking about how it is grown, Providing opportunity for the community farm visit/ expose for various goat related by-products: Soap, leather, horns*
- *Auctions, livestock auctions, tele-auctions, packers, and shipper trade*
- *Ethnic Restaurant trade*

MARKETING STRATEGIES WITH MEAT CUTS

- *Develop skills for: Skin less cuts, skin-on burnt cuts*
- *Halal slaughter, processing internal organs that are allowed by the inspectors*
- *Desired size and age of goats for various communities*

ACKNOWLEDGEMENTS

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Questions And Suggestions

Consumer Preferences for Direct-to-Consumer Value-added Agriculture in North Carolina

M. Straughter, K. Jefferson-Moore, O. Quaicoe, J. Owens, J. Bynum Mosley

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North Carolina Agricultural and Technical State University

Department of Agribusiness, Applied Economics and Agriscience Education

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Purpose

- Understand the factors that influence consumers' preferences for value-added agriculture to enhance farm profitability among small farmers in North Carolina.

Objectives

1. Conduct an exploratory research study of value-added agriculture in North Carolina.

2. Evaluate consumers' attitudes towards willingness to pay for value-added products and services in North Carolina.

North Carolina Small Farmer Income

- **50,218** farms in North Carolina (USDA, 2018).
- Only **10,227** farms list farm income over **$50,000** (USDA 2018).
- **35,916** farms list income under **$20,000** (USDA 2018).
- Small scale farms earn < **$350,000** (GCFI).
- Small scale farmers are facing decreasing profitability .

What is Value –Added Agriculture ?

- An agricultural commodity that has undergone a change in physical state to enhance the value (USDA, 2015).
- Examples:
  - Handcrafting
  - Labeling
  - Packaging
  - Churning
- Some researchers view this as a key element to increase farm profitability.

Direct Sales to Consumers

- Marketing value-added through:
  - Farmers markets
  - Roadside stands
  - Pick-your-own operations
  - Community supported agriculture (CSA) arrangements
  - Online

(USDA, 2012 NC Cooperative Extension 2020)

Literature Review

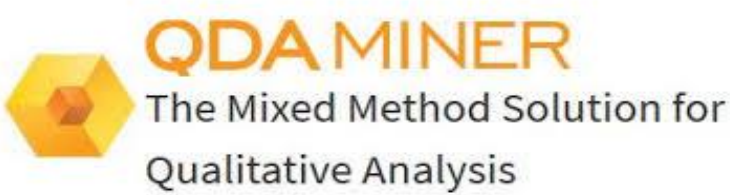
- Value-added agriculture generates several billion dollars for the state of Texas each year (US Department of Commerce, 2014).
- Examples of Value Added Agriculture
  - Calves and wintering them on wheat pasture or placing them in a feedlot. (Texas A&M System, 2009)
  - Value can be added through membership in a cooperative that processes your products, such as a cooperative cotton gin. (Texas A&M System, 2009)

Literature Review

- Demand for local foods has risen over the last decade.
- Consumers associate local foods with freshness, higher quality, and less chemical usage (Sloan 2007).
- Consumers‘ preferences or concerns are essential contributing factors of consumers **WTP** (Willing to Pay).
- Decline in N.C. milk (Agyekum, G. 2019):
  - Consumers shown interest in WTP for value-added dairy products such as yogurt
  - Increased Profits

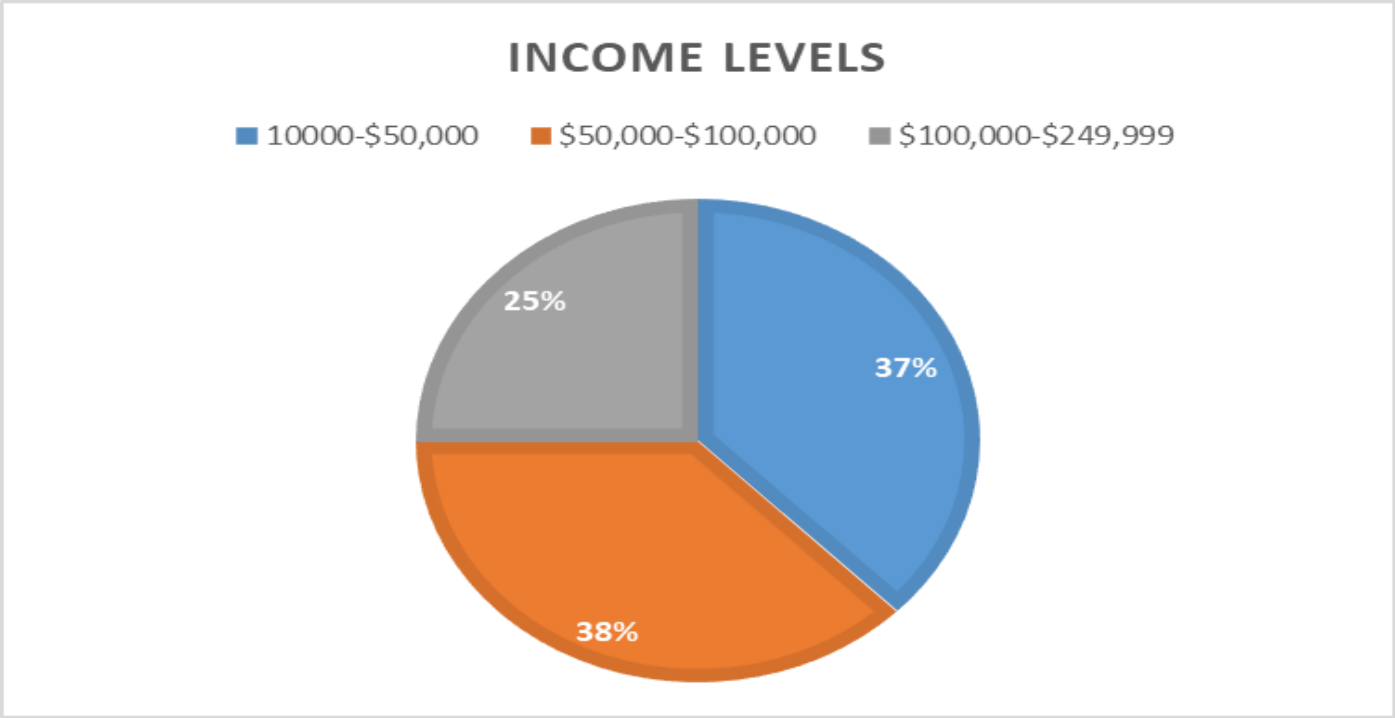
Method of Analysis

- Conduct a qualitative method of analysis.
- Obtain data through consumer focus group discussions.
- Transcribe interview discussions utilizing QDA Miner.
- Identify common themes throughout transcribed data.

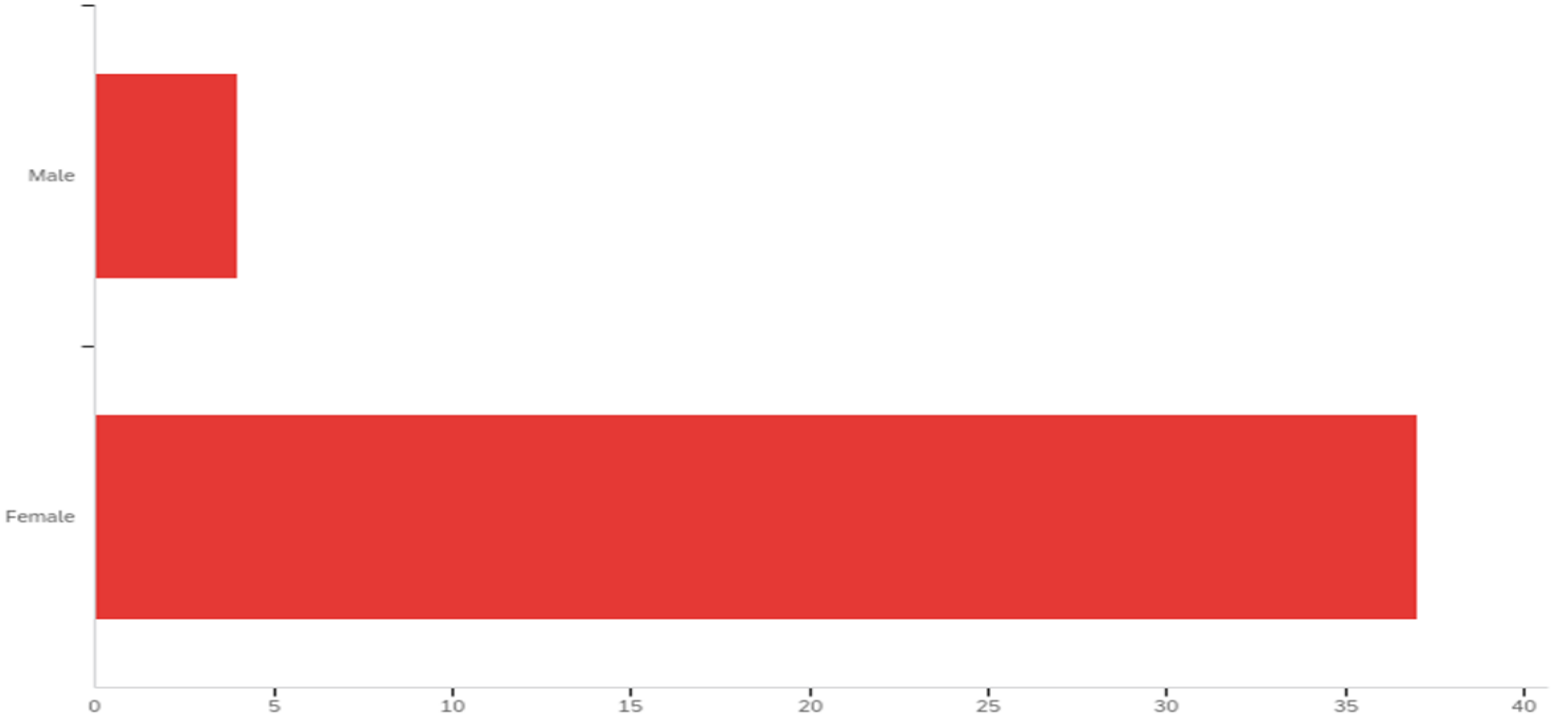


- **5 virtual** consumer value-added focus groups
- **9 counties**
- **41 participants**
- **15 structured** open-ended questions

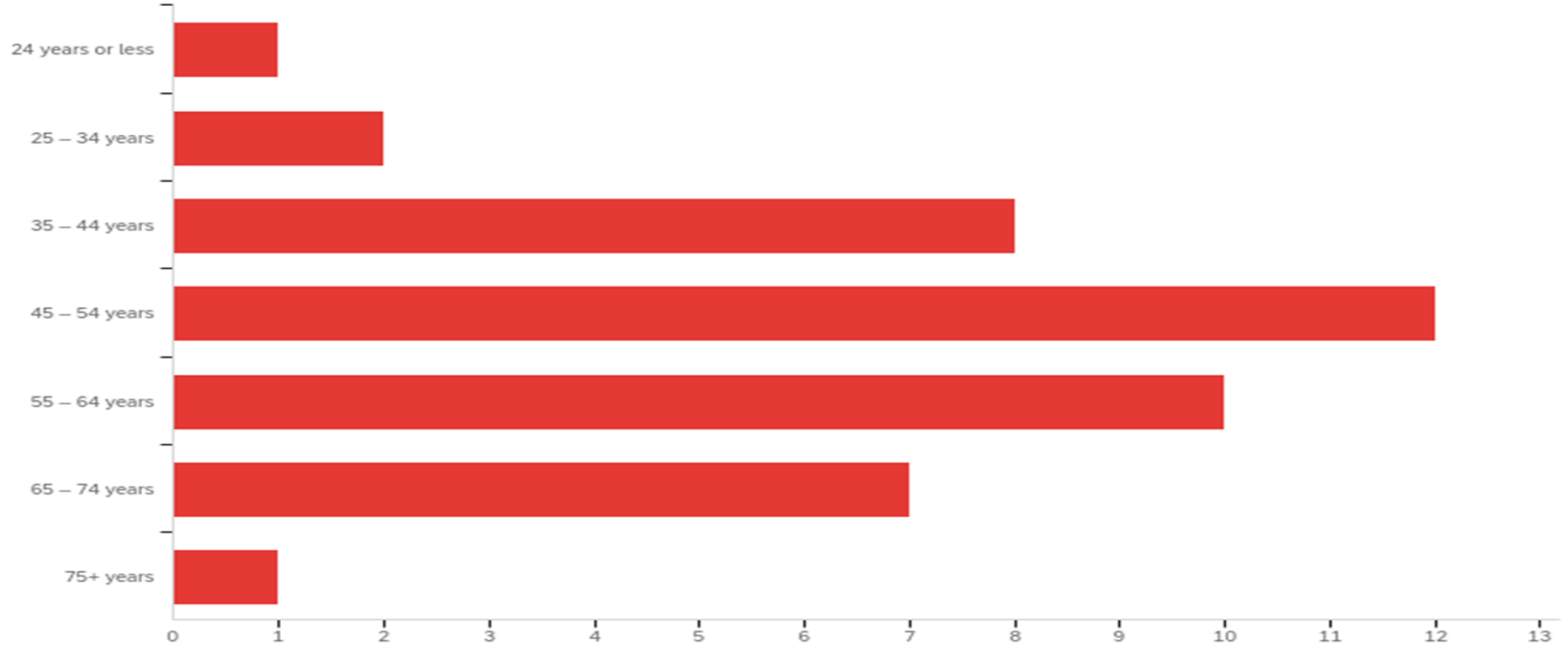
Demographics – *Income Levels*



Demographics- Gender of Participants

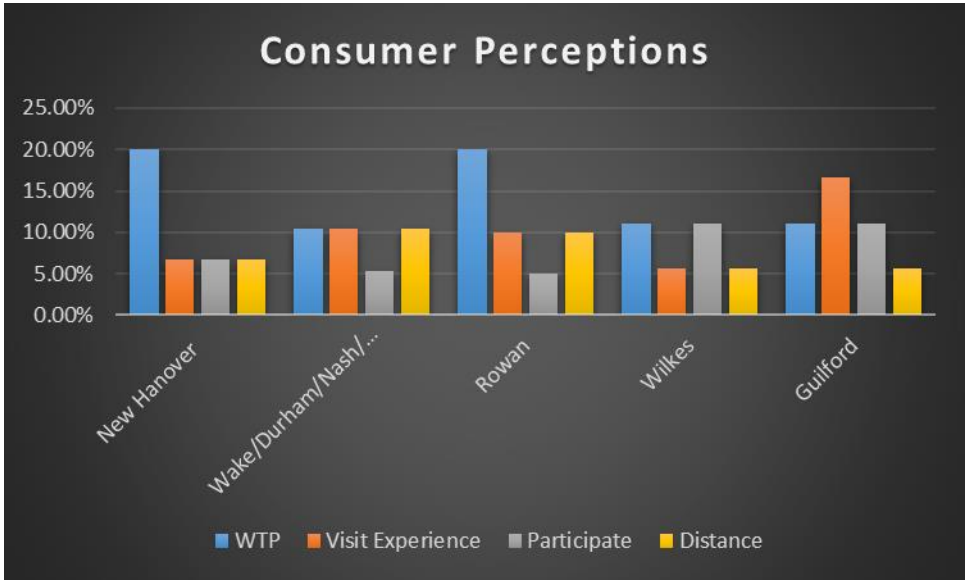


Demographics – *Age Range*



Common Themes

- Consumers attitudes towards **WTP**
- Consumers **visit experience**
- K**nowledge** of farms in vicinity 50 mi radius
- Consumers conveyed interest in **participation** of **delivery services** from farm operations



Conclusions

- Consumers show interest in their WTP for value -added products and services
- Experiences during visits influences likelihood of return
- Proximity of farm determines if its convenient for consumers
- Consumers willing to participate in farm delivery services

Next Steps

- Develop a consumer profile of consumers attitudes towards value-added products and services in North Carolina.
- Enlighten prospective small scale farmers of consumers' WTP for value-added products and services.

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Thank You!

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Consumer' Purchase of Local Food in Alternative Restaurant Formats across Consumer Age Groups

MAHLA ZARE MEHRJERDI

TIM WOODS

Introduction

- Farmers market, local restaurants and mainstream retailers.

- 53% of the 2,271 adult respondents are locavores.
- Freshness (60%), support local businesses (52%) (Packaged Facts National Consumer Survey, 2014).

WHOLE FOODS MARKET

Motivation

- 27% of the local food sales is to retailers including supermarkets, restaurants, and grocery stores (USDA NASS, 2016)

- Four out of ten hot trending concepts from the consumers' point of views are local relating concepts (National Restaurant Survey, 2018).

- Consumers are signaling that they value local food. Producers and policy makers need more information on the characteristics of locavores in restaurants to understand the impact of their marketing strategies as well as targeting market niches.

Methods

We collected data through surveys from 1600 Kentucky residents and asked them about their local food purchase behavior a long with their socio-demographic characteristics in alternative restaurant formats including fast casual, casual, fine dining.

We created three different customer groups based on responses to the ‘Age’ question.

Three Tobit models were estimated for each age group within the sample, utilizing three groups categorized at Millennials, Gen X/GenY, and Boomers+.

Model

Three Tobit models were estimated to understand variation in local food purchase across various age groups along with demographic variables (gender, education, income, type of residency and consumer importance for local food) explain variation in purchase from farmers market, grocers and local restaurants.

$$Y_i = X_i\beta \quad \text{if } i^* = X_i\beta + \mu_i > T$$

$$= 0 \quad \text{if } i^* = X_i\beta + \mu_i < T$$

Where Yi is the predicted value of local food purchase, i* is a non-observable latent variable, and T is a non-observed threshold level. The Tobit model (Tobin, 1958) therefore measures the variation in the purchase frequency.

Results

Categorizations

Income		Education		Local Food Interest (5 pt scale)		Age	
Low	<32K	HS	<=12YRS	Low	"Not at all important" or "Slightly important"	Millen	<=31
Med	32-90K	2YR degree	12YRS -14YRS	Med	"Neutral"	Gen XY	31-45
High	>90K	4YR degree	14YRS -16YRS	High	"Important“ or "Very important"	Boomer	46-60
		GD	<=16 YRS			PreWWII	>60

Variable		Mean FC	Mean C	Mean F
Local food purchase	Farmers market purchases within the last 12 months	5.42	5.10	5.36
	Grocery purchases within the last 12 months	7.70	5.64	8.02
	Restaurant purchases within the last 12 months	3.40	4.35	5.55
Age	Continuous variable	0.45	0.51	44.5
Gender	=1 if a respondent is female, and 0 otherwise	0.52	0.50	0.27
Education	The highest level of education customer has completed (years)	15.37	14.35	14.62
Income	Total income before taxes during the past 12 months ($$$)	47.75	56.99	75.81
Type of Residency	Rural=1 if a respondent lives in Rural area group, and 0 otherwise	0.25	0.33	0.43
Local Food Importance	= 1 if “Important” or “Very Important”, and 0 otherwise	0.40	0.43	0.56

Purchase Frequency	Farmers Market			Grocers			Restaurant		
Variables	**FC**	**C**	**F**	**FC**	**C**	**F**	**FC**	**C**	**F**
Age									
Millen* *Reference group*	---	---	---	---	---	---	---	---	---
Gen XY	.37	1.19	.08	-.43	-.36	.29	.04	-.78	-.41
Boomer	.001	2.10***	1.53**	-1.29**	-.14	-.06	-.90	-.65	-.01
Pre WWII	.36	1.16	1.46*	-1.78***	-1.24	-.12	-1.88***	-2.78	-1.01
LFImportance Reference group is "Not at all, Slightly interested or Neutral	3.81***	3.37***	3.45***	3.78***	3.53	3.71***	3.41***	3.68***	2.83
Income	.01***	.01**	.01	.01**	.007	.01**	.02***	.01**	.003
Education	.03	.06	.19	-.08	.01	.04	.007	-.004	.43
Female	-.24	.15	.63	.44	.22	1.48**	-.04	.25	.58
Residency Reference group is urban	.40	-.31	.42	-.78**	-.07	.16	-.49	-.69	-.49
N	*864*	*364*	*339*	*780*	*325*	*318*	*674*	*269*	*294*
Pseduo R2	*.02*	*.03*	*.02*	*.02*	*.02*	*.02*	*.02*	*.04*	*.02*

Conclusion

- Our results suggest distinctive differences in local food purchase across components of alternative restaurant formats by age.
- These results are useful for chefs who seek to understand consumers' preferences for distinct attributes as well as the retailers and government agencies who are engaged in the field of promoting local foods and evaluating the effectiveness of these programs.
- Results of this study can assist research and community development organizations who try to set priorities that would strengthen and create economic opportunities for producers and local food businesses

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