

# Food Safety and Economic Impacts on Florida Growers

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Japanese proverb – Vision without action is a daydream. Action without vision is a nightmare

# Food Safety in a Historical Perspective

- Government recognized food safety as an issue in early 1900's
- 1967 Federal Meat Inspection Act made mandatory poultry and meat inspection at the State level.
- 1997 Clinton Food Safety Initiative identified 6 agencies to charge with food safety and implemented the Hazard Analysis and Critical Control Point (HACCP) program.
- Food safety became an issue to the tomato industry when 14 of 78 food safety incidents were associated with tomatoes between 1998 and 2008.

# Tomatoes and Food Safety

- History of food safety incidents and the severity of the impacts from the 2007 multistate outbreak of Salmonella Saintpaul led to mandatory implementation of Good Agricultural Practices (GAP) and Best Management Practices (BMP) in Florida to mitigate the risk of food safety incidents.
- Problem – A food safety incident originating from any source has the potential to have large impacts on Florida growers.
- Question – Do public and private audits mitigate this risk?

# Methodology

- Estimate the impacts of previous food safety incidents on Florida growers.
- Estimate potential benefits of food safety measures implemented in the Florida tomato industry.

# Estimating Impacts of Food Safety Incidents

- Arnade, Calvin and Kuchler (2009) estimated the impact of the E. coli incident in bagged spinach in 2006 lingered through calendar year 2007.

# Price dependent model

$$P = \beta_0 + \beta_1 CI + \beta_2 QQS + \beta_3 SALMONELLA + \beta_4 HA + \beta_5 CUC + \beta_6 CIC$$

- P monthly price of Florida tomatoes
- CI consumer income as measured by U.S. Bureau of Economic Analysis
- QQS 1,000 cartons of tomatoes shipped from Florida and Mexico
- Salmonella dummy variable =1 if salmonella outbreak identified by CDC that month, 0 otherwise
- HA dummy variable =1 if Hepatitis A outbreak identified by CDC that month, 0 otherwise
- CUC is monthly price of cucumbers shipped from Florida
- CIC is interaction term equal to product of consumer income and price of Florida cucumbers

# Model Results

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Number of observations N = 44, R <sup>2</sup> = 0.453	Parameter	Standard Error	Pr >  t
Variable			
INTERCEPT	-91.8992	70.1857	0.1987
CI	0.0363	0.023	0.1233
QQS	-0.000576	0.000224	0.0142
SALMONELLA	-2.6138	1.58	0.1068
HA	-4.1024	3.4081	0.2365
CUC	9.0225	4.9798	0.0784
CIC	-0.002946	0.001637	0.0802

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# Economic Impacts

- Salmonella Saintpaul impacts occurred in June, July and October, 2007
- When Salmonella Saintpaul incidents occurred in 2007, revenues decreased \$2.61 per carton in those months when the outbreak occurred.
- The overall impact in 2007 totaled \$18.01 million for Salmonella Saintpaul, 3.98% of annual crop value in Florida, but 28.32% of crop value in the months of June, July and October, 2007 when the incidents occurred.



# Anecdotal Evidence Supports These Results

- Average Florida value declined from \$40.90 per hundred pounds in 2006 to \$31.90 per hundred pounds in 2007 even though total quantity declined.
- After implementation of food safety standards in Florida, average values increased to \$59.50 per hundred pounds

Aristotle “He who cannot be a good follower cannot be a good leader”

# Conclusions

- Food safety initiatives appear to be adding value to Florida tomatoes
- Public audits costing an estimated \$262.50 and private audits costing as much as \$1,500 appear to be adding value to Florida tomatoes, at least until any future incident calls into question the added safety resulting from the audits.

Mark Twain “Better to keep your mouth closed and appear stupid than to open it and remove all doubt.”

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Indira Gandhi “My father told me that there are 2 kinds of people in the world – those who do the work and those who take the credit. He told me to try to be in the first group – there was less competition.”