

**Best Handling and Packaging Practices Webinars and Workshops for  
Producers Selling Produce, Meats, Dairy Products and Eggs at Farmers Markets  
FY 2011**

In Texas, there are more than 500 producers who sell at more than 150 Texas farmers markets. Some of these same producers have a goal of expanding into retail markets but do not know the best packaging, handling, storage and labeling practices for distribution to farmers markets and local retail grocery store chains. The purpose of this project was to educate producers on best practices and help them improve their presentation at farmers markets and retailers, and help increase sales of their products.

The Texas Department of Agriculture (TDA) partnered with Texas AgriLife Extension, the Texas Department of State Health Services and the Conrad Hilton College of Hotel and Restaurant Management at University of Houston, to develop webinars and workshops to train producers on best practices. FSMIP funding helped educate producers and facilitate the distribution of products from the farm to retail outlets and farmers markets.

**FINAL REPORT**

**Contact:**

Richard De Los Santos  
Texas Department of Agriculture  
Marketing Coordinator for Horticulture, Produce and Forestry  
512-463-7472

[Richard.DeLosSantos@TexasAgriculture.gov](mailto:Richard.DeLosSantos@TexasAgriculture.gov)

# **Best Handling and Packaging Practices Webinars and Workshops for Producers Selling Produce, Meats, Dairy Products and Eggs at Farmers Markets Final Report**

## **Project Summary**

In Texas, there are more than 500 producers who sell at more than 150 Texas farmers markets. Some of these same producers have a goal of expanding into retail markets but do not know the best packaging, handling, storage and labeling practices for distribution to farmers markets and local retail grocery store chains. The purpose of this project was to educate producers on best practices and help them improve their presentation at farmers markets and retailers, and help increase sales of their products.

The Texas Department of Agriculture (TDA) partnered with Texas AgriLife Extension, the Texas Department of State Health Services and the Conrad Hilton College of Hotel and Restaurant Management at University of Houston, to develop webinars and workshops to train producers on best practices. Federal State Marketing Improvement Program (FSMIP) funding helped educate producers and facilitate the distribution of products from the farm to retail outlets and farmers markets.

TDA's goal was to create uniformity in product packaging and handling to increase market share for producers through education. To achieve this goal the following objectives were established:

- Objective 1 – Create an online webinar for producers across Texas.
- Objective 2 – Partner with the Texas Farmers Market Association to conduct training at its annual conference.
- Objective 3 – Create an online training reference manual for producers unable to participate in a webinar or attend the conference training.

Our partners contributed more than 370 hours of their time to help develop the information, create the handouts, attend and present at the conference as well as organize and present at the webinar. This project would not have been possible without the support and partnership of the University of Houston, Texas Certified Farmers Market Cooperative, Texas AgriLife Extension and the Texas Vegetable Association.

## **Project Approach**

### Conference Training

The Texas Department of Agriculture (TDA) worked with agency partners to gather information and conduct a workshop on procedures and requirements for packaging meats, eggs, dairy products, fruits and vegetables for sale at farmers markets. Workshop topics also included types of packaging available, sources of packaging and best transportation methods. TDA collaborated with the Texas Certified Farmers Market Association to build a list of producers that attended the workshop. TDA and our partners created and distributed information sheets for attendees.

### Webinar

TDA dedicated half of the salary/time of a full time employee to the completion of this project. This person researched information for webinars and worked with agency partners to gather information and conduct a webinar on procedures and requirements for packaging meats, eggs, dairy products, fruits and vegetables for sale at farmers markets. Webinar topics included:

- Wrap It Right – GAPs and Food Packaging Insights,
- To Wash, or Not to Wash – Food Safety & Handling, and
- Texas Trends – What’s Working & How to Take Your Operation to The Next Level.

TDA collaborated with the Texas Certified Farmers Market Association, Texas A&M AgriLife Extension and the Texas Vegetable Association to plan and develop the Focus on Food – Packaging, Safety & Trends webinar. Coordination included finding the host webinar service, finalizing the topics, coordinating the date and time with the speakers and getting the information to the farmers market managers and vendors as well as other small and large local farmers. Thirty-one producers participated in the webinar. TDA also conducted a post-webinar survey and analyzed the results to help determine the success of the webinar and the project.

## **Results**

Generally farmer’s market vendors sell a variety of products including meats, poultry, eggs and dairy products as well as fresh fruits and vegetables. This was the target audience because of the opportunity to reach a diverse audience. The workshop attendance however was not as diverse as expected. Attendees were mainly producers of fruits and vegetables.

### Farmers Market Conference Workshop

More than 100 growers attended the Texas Certified Farmers Market Conference and participated in the workshop. Throughout the course of the growing season, attendees produced a wide variety of products. The following chart gives an overview of the crops that are produced by those that participated in the workshop and webinar.

Table 1.

<p><u>Leafy greens</u></p> <p>Spinach 54.1%</p> <p>Lettuces 57.4%</p> <p>Bitter greens 29.5%</p> <p>Other 34.4%</p>	<p><u>Nightshades</u></p> <p>Tomatoes 77%</p> <p>Eggplant 52.5%</p> <p>Peppers 75.4%</p> <p>Potatoes 52.5%</p>	<p><u>Cruciferous</u></p> <p>Cauliflower 32.8%</p> <p>Broccoli 44.3%</p> <p>Squash 70.5%</p> <p>Alliums (Onion, Garlic, etc.) 54.1%</p> <p>Beans 42.6%</p> <p>Cabbage 45.9%</p> <p>Other 26.2%</p>	<p><u>Fruits</u></p> <p>Tree fruits 42.6%</p> <p>Berries 29.5%</p> <p>Melons 50.8%</p> <p>Other 24.6%</p>
---	--	--	---

The workshop topics included types of packaging available, sources of packaging and best transportation methods, as well as information from the Texas Department of State Health Services, information on prepackaging techniques to improve food safety issues and a snapshot of Good Agricultural Practices.

A benchmark was established by determining how many producers already feel they wash their produce sufficiently. Surprisingly, 44.3percent felt they washed well while 32.8percent thought they washed very well. However, when asked if they used a sanitation agent, 70percent did not.

Figure 1.

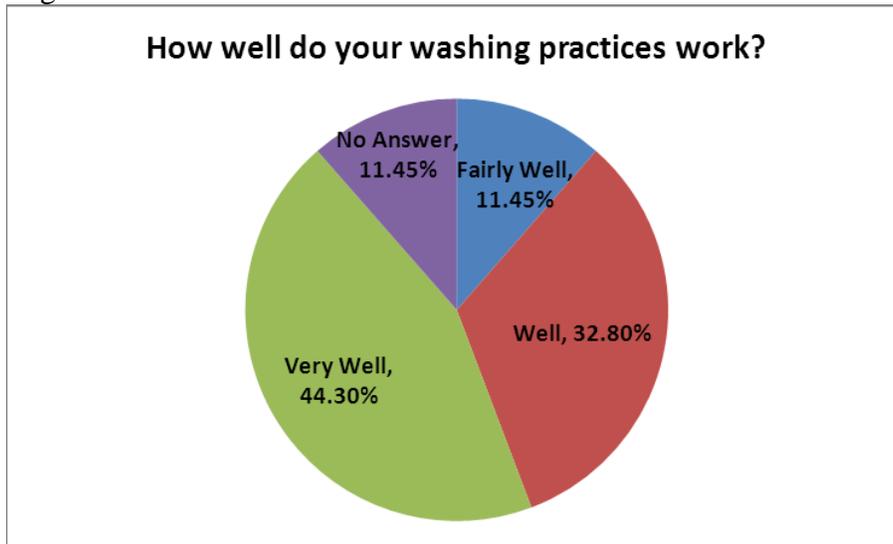
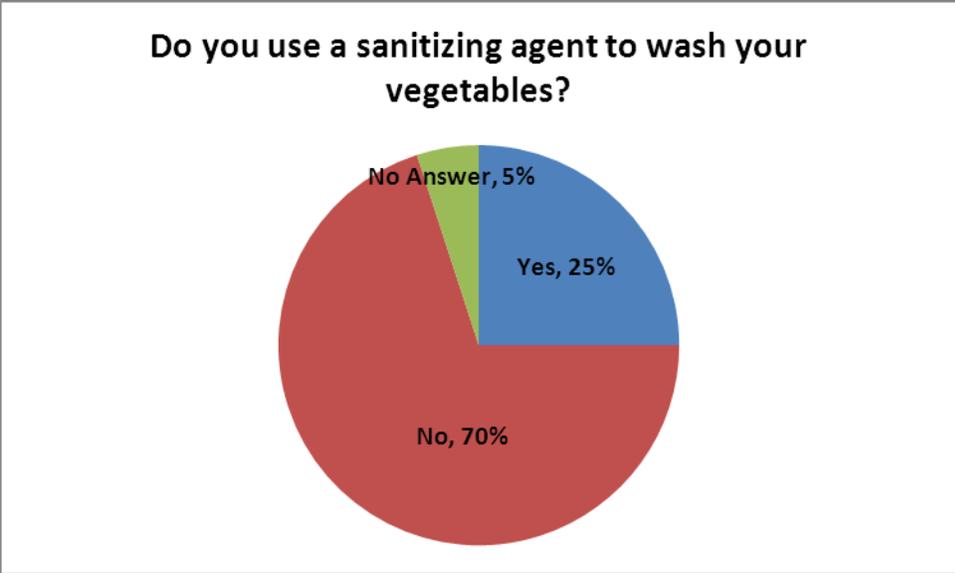
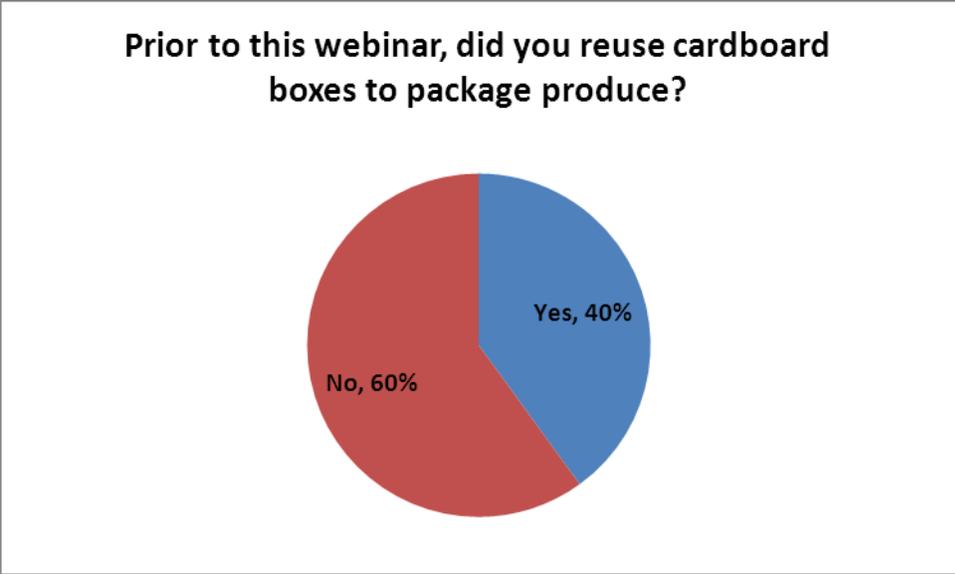


Figure 2.



The use of cardboard boxes for packaging and sale at farmers markets and retail stores was discussed. Attendees were informed of the risks associated with cardboard boxes, such as how moisture build up can lead to bacterial growth and storage can sometimes result in an unwanted infestation of insects such as roaches. The following chart indicates that 60 percent of producers surveyed did not reuse their cardboard boxes. This is good but still leaves a lot of room for improvement.

Figure 3.



After the training, producers stated that they would change their packaging to the new alternative discussed and move away from cardboard boxes. One hundred percent of the survey responses stated that they would not continue to use cardboard boxes. In addition, after the training 43 percent of attendees stated they would be very curious about learning more about post-harvest washing techniques and 23 percent said they were very interested in learning more if it would help them expand into the retail market and increase their sales.

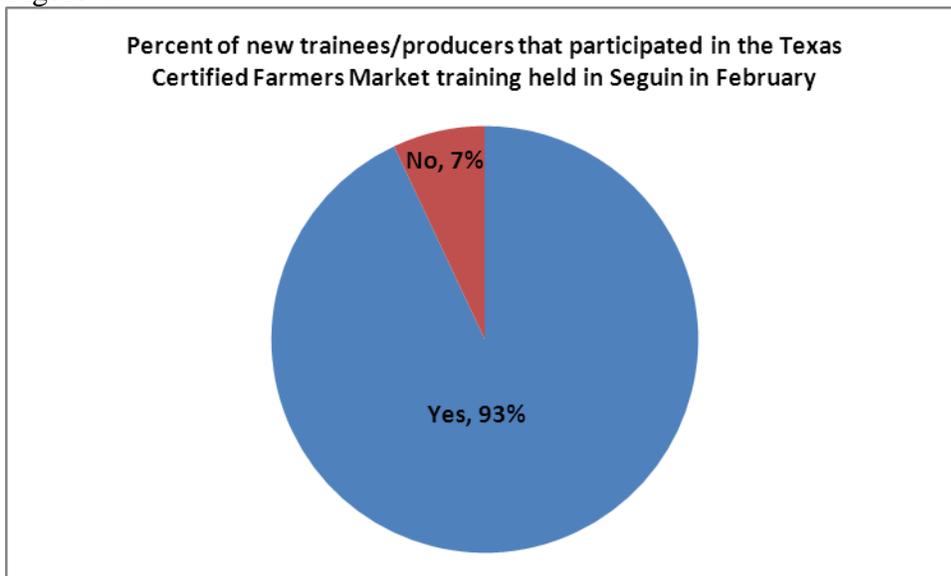
### Webinar

Thirty-one producers participated in the webinar. The goal of the webinar was to reach producers that were not able to attend the conference training held at the Texas Certified Farmers Market Annual meeting. Ninety-three percent of those participating in the webinar did not attend the conference training.

Webinar topics included:

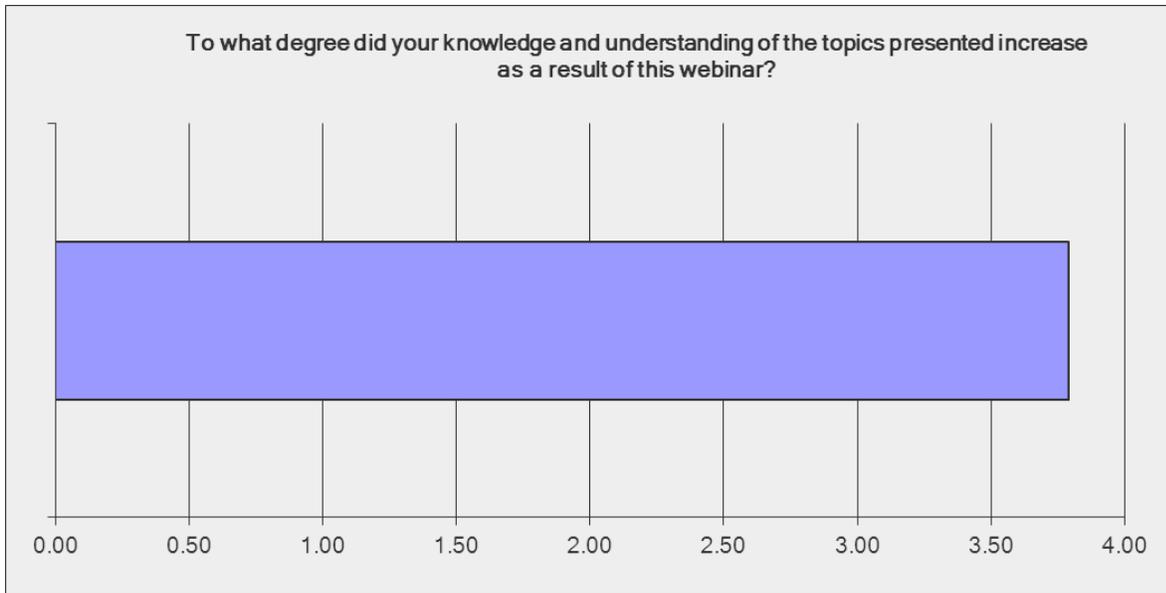
- Wrap It Right – GAPs and Food Packaging Insights,
- To Wash, or Not to Wash – Food Safety & Handling and
- Texas Trends – What’s Working & How to Take Your Operation to The Next Level

Figure 4.



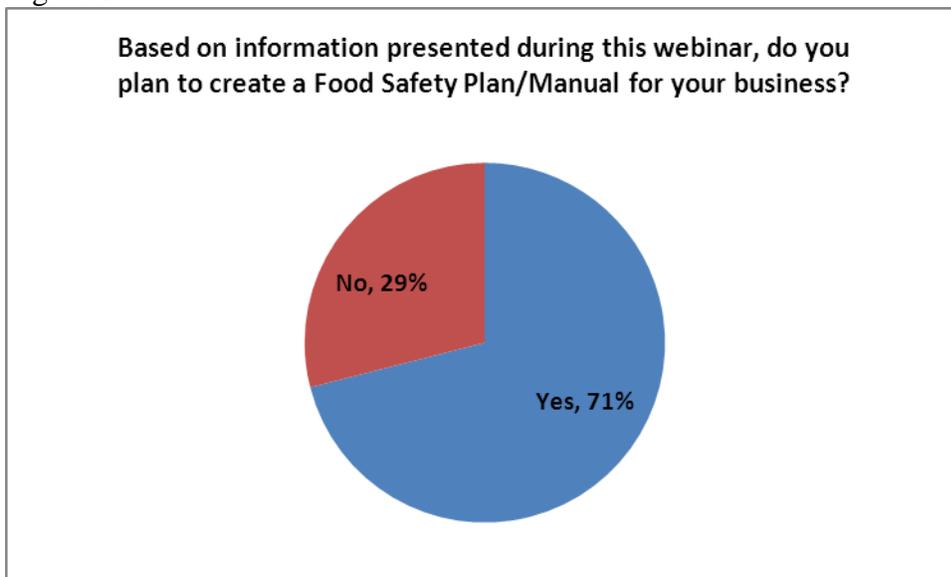
The next two graphs indicate the successfulness of the workshop and webinar. Figure 5 shows that attendees reported that their knowledge of the topics presented increased nearly 4% as a result of participating in the webinar.

Figure 5.



Based on the information they obtained from participating in the webinar, Figure 6 shows that 71percent of the attendees plan to create and follow a Food Safety Plan/Manual.

Figure 6.



### Beneficiaries

More than 130 fruit and vegetable producers in Texas benefited from the workshop and webinar. These producers grow twenty different types of fruits and vegetables as shown in the Table 1 above.

## **Future**

Surveys indicated that even though both the workshop and the webinar were successful, the producers still want to learn more about the topics and are in need of further training. With the importance of the GAP and food safety programs, workshops and webinars like this one offer producers new opportunities to learn about packaging their products in a way that will increase the quality and safety of their products. All objectives and goals of this project were met. Increasing producer knowledge on packaging, food safety issues and handling practices give producers the tools to expand their businesses. TDA is working very closely with retailers to identify producers that have this experience and GAP certification as well as the ability to produce the volume required.

In the future, if GAP or food safety certification required continuing education units, the Farmers Market Association conference and other similar events should be considered to reach the target audience.

## **Lessons Learned**

Offering the information through both organized conferences and via webinars was beneficial and reached a variety of producers. In hindsight, we would have been able to reach additional producers by offering regional training sessions; participants would have been able to attend without incurring significant travel cost. Future efforts should make use of the TDA regional offices located throughout the state in an effort to make the locations more convenient to participants. Utilizing the regional offices as needed for webinar participation would have also provided an alternative to potential participants without internet access.

## **Contact Information**

Texas Department of Agriculture

Contact: Richard De Los Santos

Phone: (512) 463-7472

E-mail: [Richard.DeLosSantos@TexasAgriculture.gov](mailto:Richard.DeLosSantos@TexasAgriculture.gov)

# Focus on Food Packaging, Safety & Trends



## WEBINAR AGENDA

- **INTRODUCTION**  
Richard De Los Santos, Texas  
Department of Agriculture
- **WRAP IT RIGHT**  
GAPs and Food Packaging  
Insights – Dr. Juan Anciso,  
Texas A&M University
- **TO WASH, OR NOT TO  
WASH**  
Food Safety and Handling Tips –  
Dr. Jay Neal, University of  
Houston
- **TEXAS TRENDS**  
Incorporate What's Working  
Today and Prepare for  
Tomorrow – J Carnes, Winter  
Garden Produce

## THE PATH FOR SUCCESS: INFORMATION TO GROW YOUR BUSINESS

Join industry experts to learn about food issues currently affecting your business. The "Focus on Food – Packaging, Safety & Trends" webinar will provide timely information about food packaging, safety, handling and trends for success. Presented by the Texas Department of Agriculture, the University of Houston, and Texas A&M AgriLife Extension.

**Date:** Tuesday, Dec. 11, 2012

**Time:** 9 a.m. – 10:30 a.m.

**Cost:** Free

**To register, email your contact information to:**

[Leslie.Pierson@TexasAgriculture.gov](mailto:Leslie.Pierson@TexasAgriculture.gov)



**GO TEXAN.**

COMMISSIONER TODD STAPLES • TEXAS DEPARTMENT OF AGRICULTURE

PO BOX 12487, AUSTIN, TEXAS 78711 • (512) 463-5045 • GOTEXAN.ORG

## Focus on Food – Packaging, Safety & Trends Webinar

Tuesday, December 11, 2012

9 – 10:30 a.m.

*Presented by the Texas Department of Agriculture, the University of Houston and Texas A&M Agrilife Extension*

9 – 9:10 a.m.

### Introduction & GO TEXAN

*Richard De Los Santos, Texas Department of Agriculture*

Richard De Los Santos is the Marketing Coordinator for the Texas Department of Agriculture. He has been with TDA for 12 years. Prior to that Richard worked 11 years in the seed industry developing and marketing new vegetable varieties.



9:10 – 9:30 a.m.

### Wrap It Right – GAPs and Food Packaging Insights

*Dr. Juan Anciso, Texas A&M University*

Dr. Anciso is the Extension Vegetable Specialist for the 21 county area of District 12 which stretches from Brownsville to Eagle Pass. As the Integrated Pest Management Agent for Hidalgo and Cameron counties he coordinated the IPM program for citrus and vegetable pests from 1989 to 2002. Dr. Anciso has written several scientific articles on vegetable pest management and food safety. He represents Texas on the National Good Agricultural Practices committee and National GAPs Harmonization effort that addresses GAPs food safety in produce.



9:30 – 9:50 a.m.

### To Wash, or Not to Wash – Food Safety & Handling

*Dr. Jay Neal, University of Houston*

Dr. Jay Neal is an assistant professor at the Conrad N. Hilton College of Hotel and Restaurant Management at the University of Houston. His current research has focused on food handler safety behaviors especially non-English speaking individuals and developing food safety cultures. He is also partnering with the Texas Department of Agriculture to help small farmers create a produce washing station to improve produce quality.



9:50 – 10:10 a.m.

### Texas Trends – What's Working & How to Take Your Operation to The Next Level

*J Carnes, Winter Garden Produce*

J Carnes is the managing partner of Winter Garden Produce, LLC and vice president of the family farming operation, Carnes Farms. Their operations grow and ship fifteen hundred acres of vegetables annually. J is a past president of the Texas Vegetable Association and he has been very involved on both the State and Federal level in agricultural issues.



10:10 - 10:30 a.m.

### Question & Answer Session

*All participants are welcome to submit questions and/or thoughts for further discussion.*



# Focus on Food Packaging, Safety & Trends

December 11, 2012

# Introduction: Foodborne Pathogens

- ▶ Most foodborne pathogens such as *Listeria*, *Escherichia coli*, and *Salmonella* reside in the intestines of animals



# Introduction: Foodborne Pathogens

- ▶ However, recently there have been several foodborne microorganism outbreaks involving a variety of foods including fresh produce
- ▶ In 2011, 1/3<sup>rd</sup> of all foodborne disease outbreaks were due to microbial contamination of fresh produce



# Examples of Fresh Produce Implicated in Bacterial Foodborne Outbreaks in Recent Months



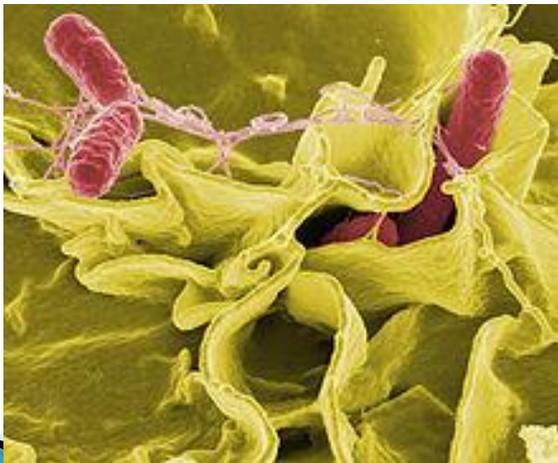
# Current Research at University of Houston

- ▶ Farmers may perform a water wash for fresh produce (Personal Communication)
- ▶ However, water may not be effective against pathogenic microorganisms



# Goals of Our Research

- ▶ Develop scientifically validated methods/suggestions for farmers
- ▶ The overall goal of this research was to identify a natural, economical, and effective interventions against foodborne pathogens *Salmonella* and *E. coli*



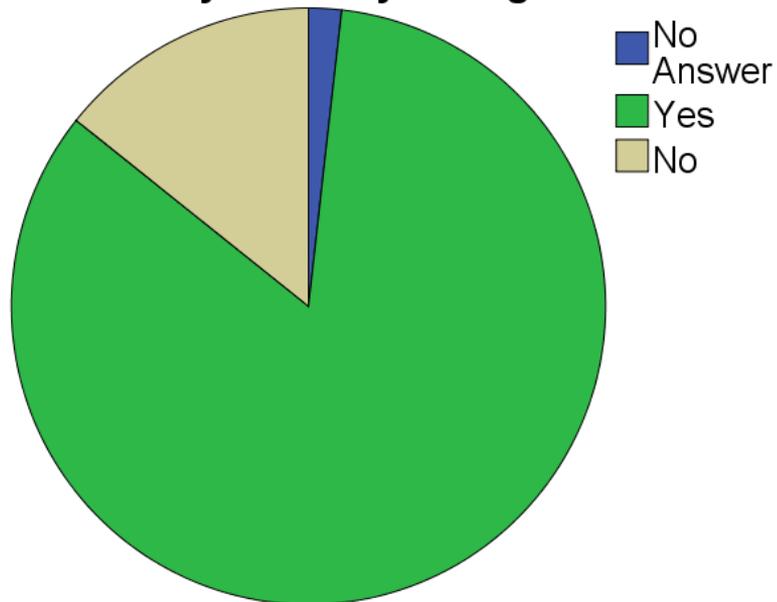
*Salmonella*



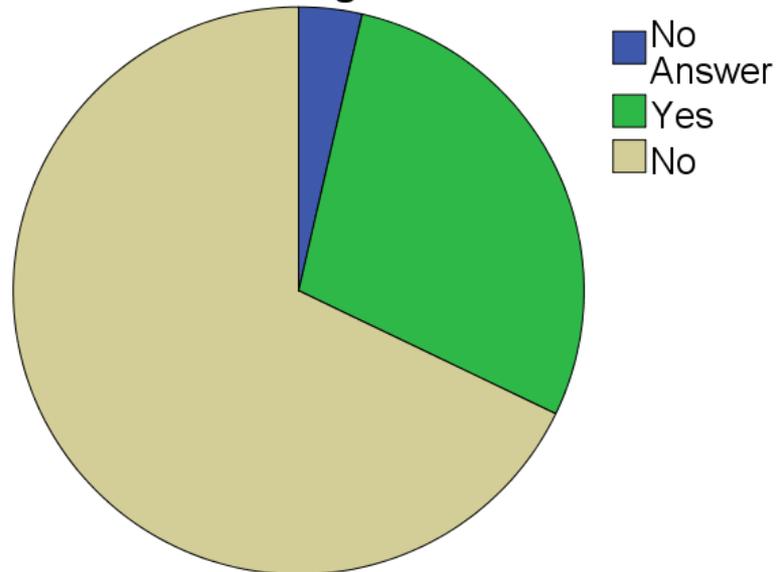
*Escherichia coli*

# Farmers Market Survey 2012

Do you wash your vegetables?



Do you use a sanitizing agent to wash your vegetables?



Response to farmers market survey; Yes, 77.0%

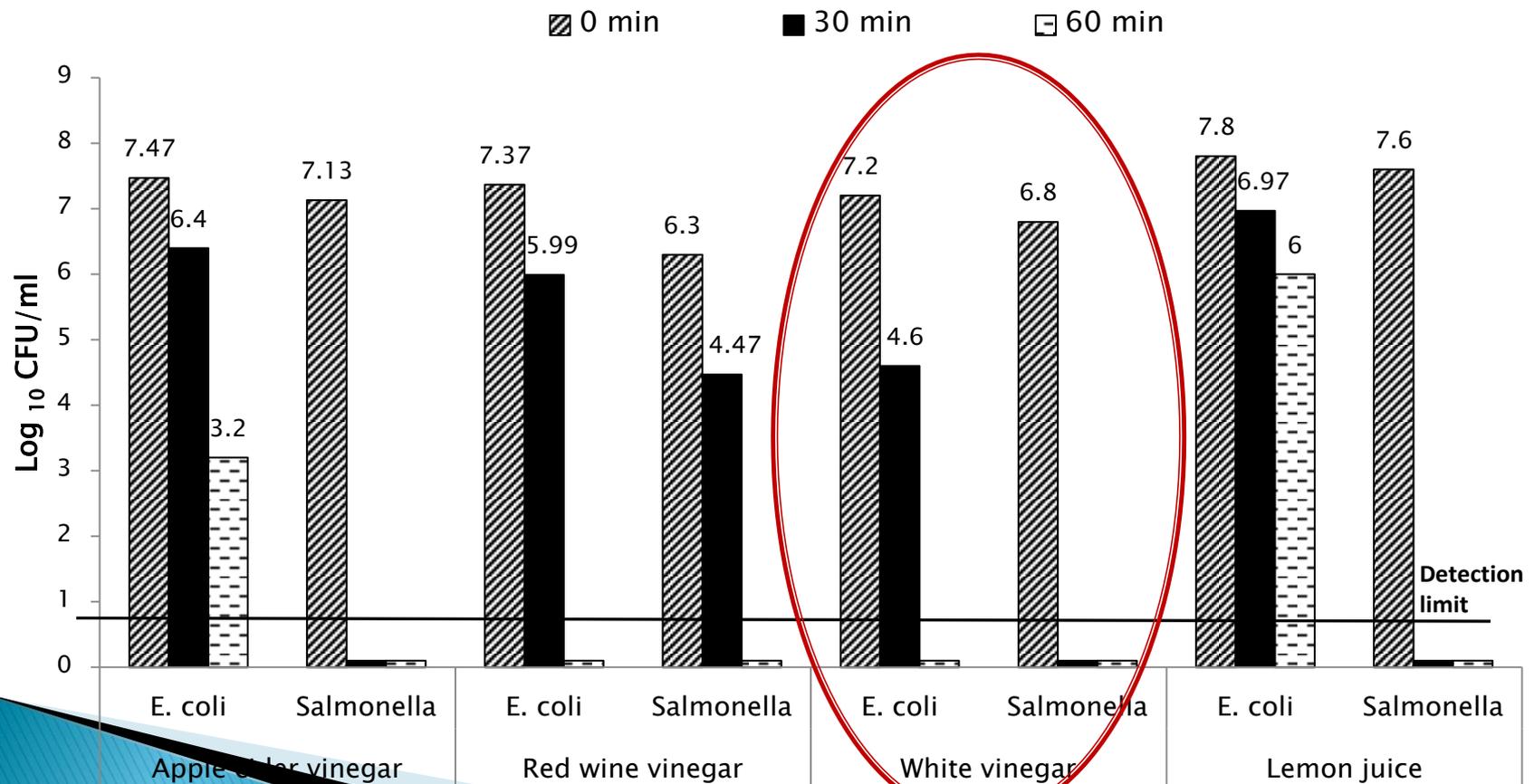
Response to farmers market survey; No, 67.9%

# Objective- Part I

- ▶ Screen a variety of natural compounds against *Salmonella* and *E. coli in vitro* (in laboratory conditions) at various time points (0, 30, and 60 min)



# The Effects of Natural Interventions Against *Salmonella* and *E. coli* at Various Time Points



# Conclusions from Objective 1

- ▶ White vinegar was the most effective intervention against both *Salmonella* and *E. coli* when compared to the other interventions (lemon juice, red wine, and apple cider vinegar)

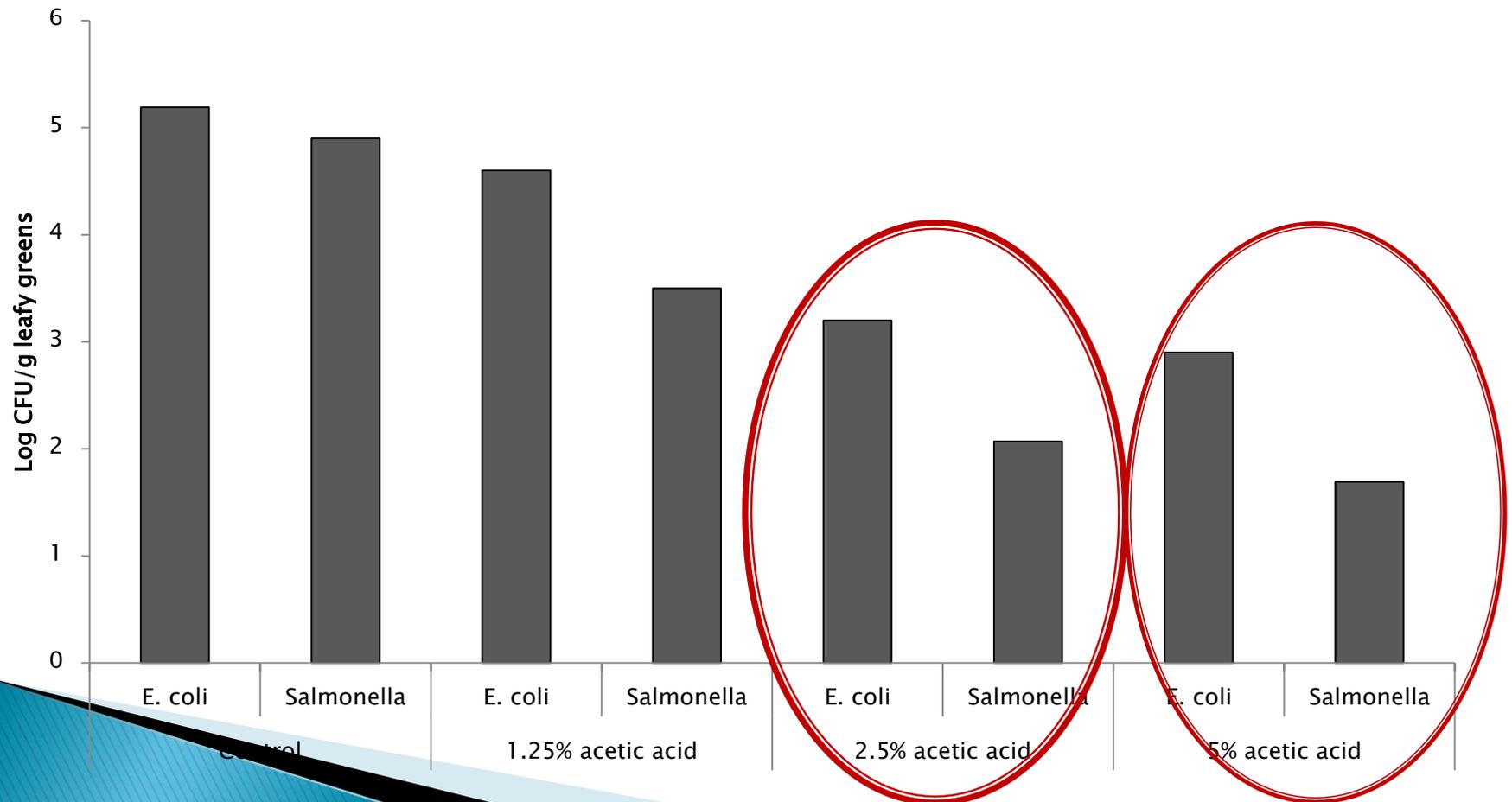


# Objective– Part II

- ▶ Studied the efficacy of various concentrations of the most effective compound (white vinegar) against foodborne pathogens *Salmonella* and *E. coli* inoculated on fresh leafy greens



# Vinegar Intervention Against *Salmonella* and *E. coli* Inoculated on Leafy Greens



# Conclusions from Objective II

- ▶ Plain white vinegar (5% acetic acid) and diluted white vinegar (1:1 dilution at 2.5%) are effective at reducing *Salmonella* and *E. coli* by 100 to 1000 colony forming units (CFU)



Lettuce with 100–  
1000 *E. coli/Salmonella* cells

15 minute  
white vinegar  
intervention

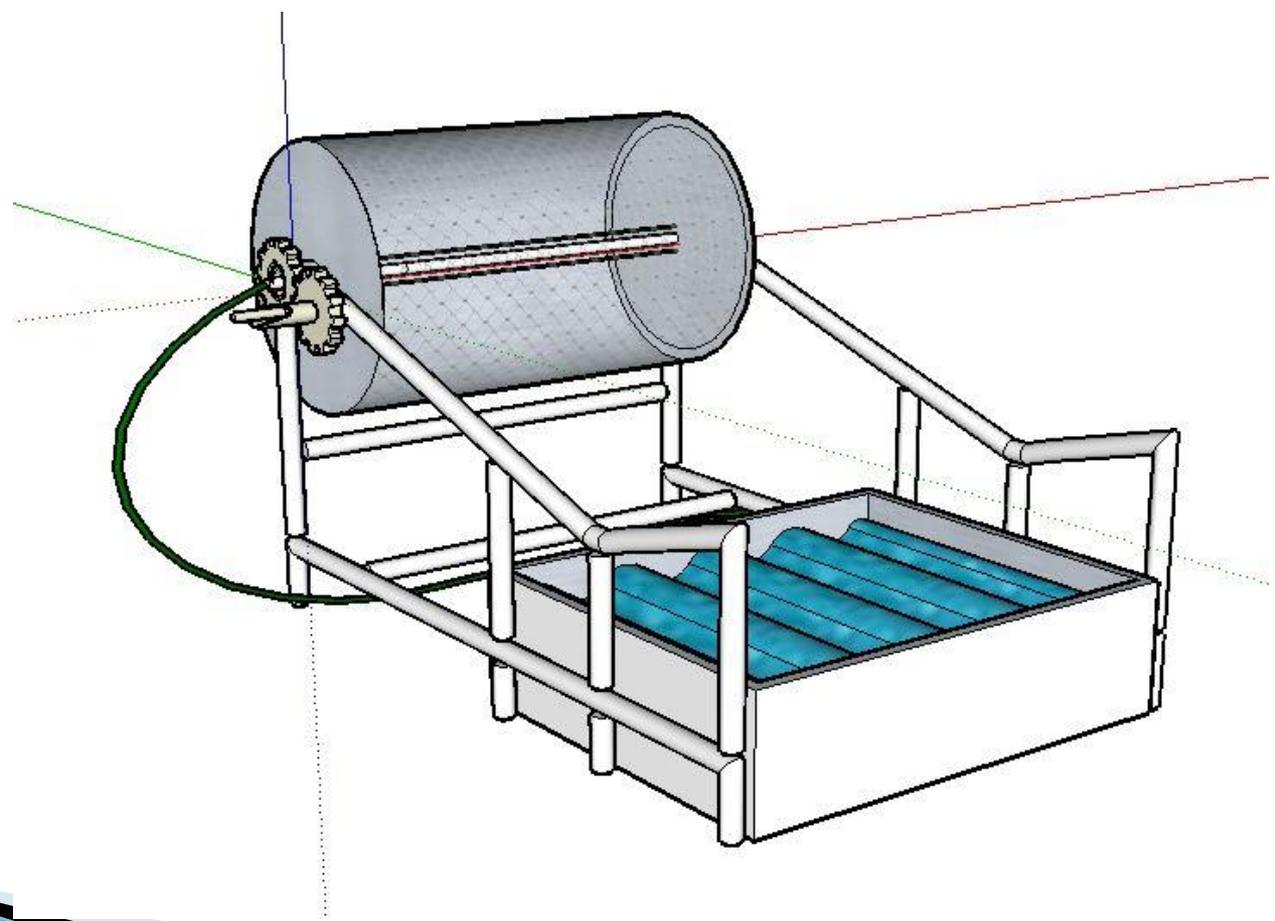


Reduced risk of  
foodborne illness

# Sanitizing Station

- ▶ We are working on developing a sanitizing station specifically for small farmers
  - ▶ The sanitizing station will be developed to perform the following functions:
    1. sanitize fresh leafy greens using white vinegar
    2. rinse the greens with water
    3. dry the leafy greens
- 

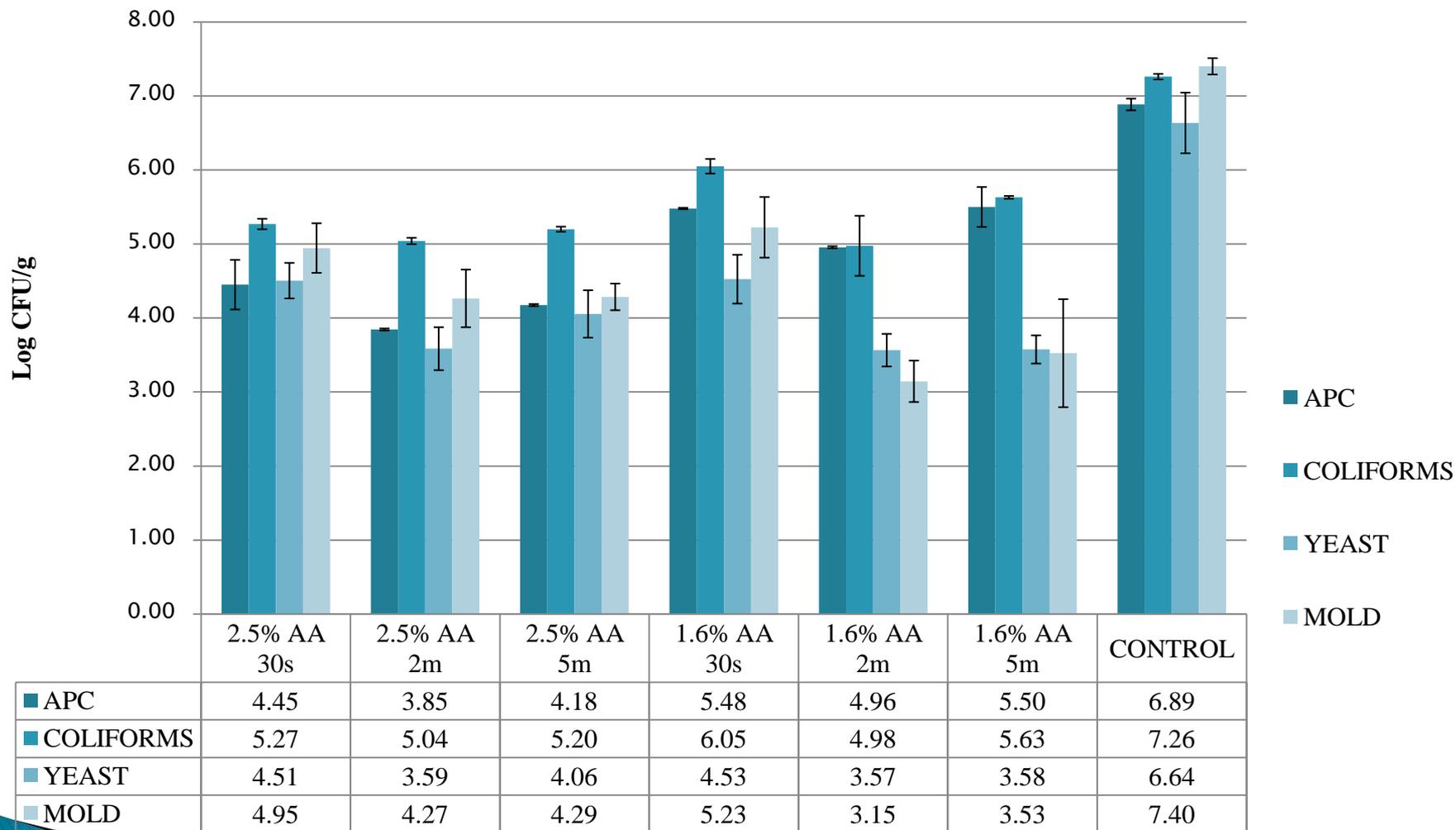
# Sanitizing Station Prototype



# Sanitizing Station Prototype

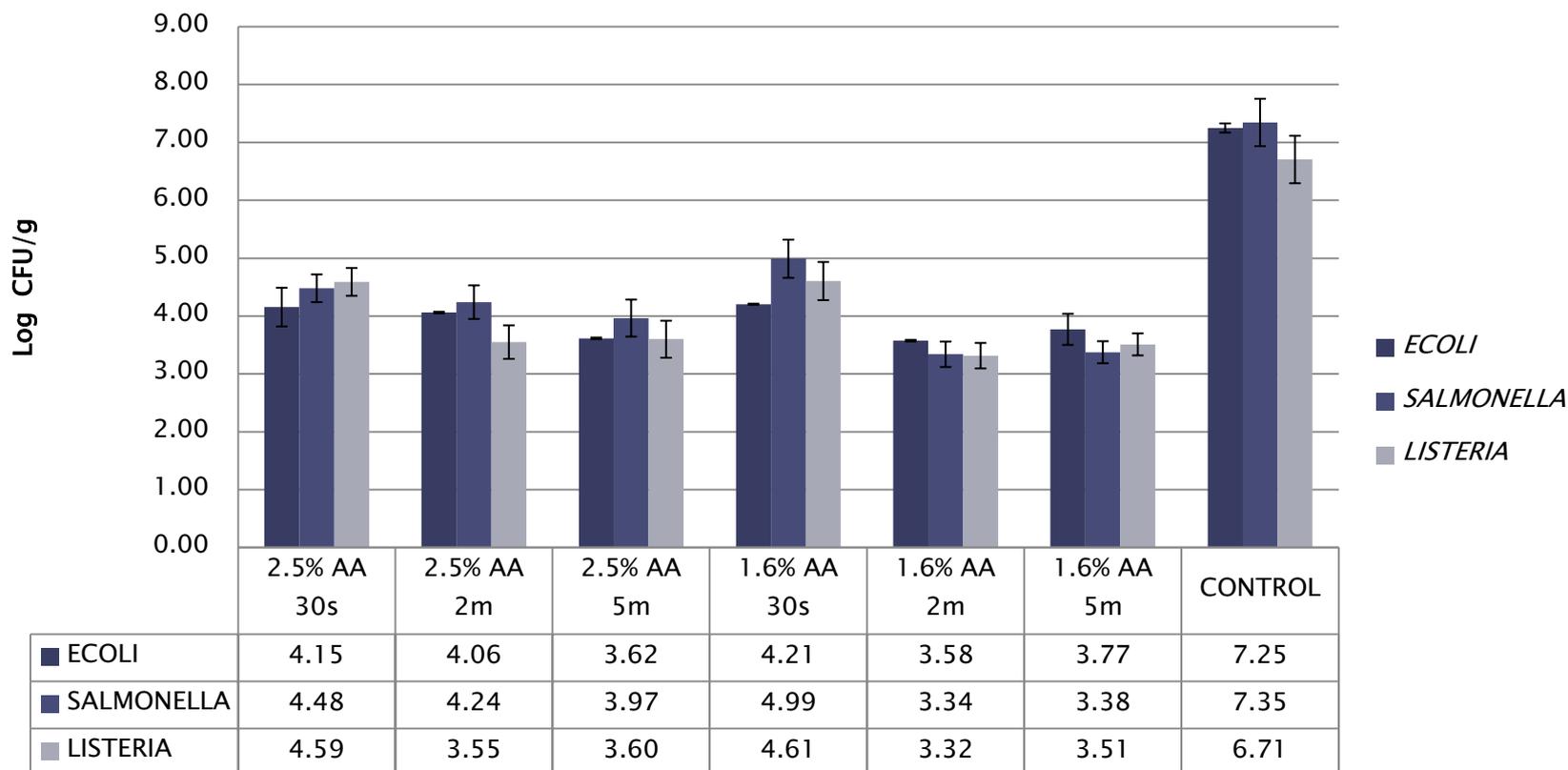


# Effects of Acetic Acid on Microbiological Characteristics of Leafy Greens



# Effects of Acetic Acid on Microbiological Characteristics of Leafy Greens

## Effects of Acetic Acid on Leafy Greens



# Produce Box Study

Motivation for Study:  
Personal communication with small farmers during the Annual Texas Certified Farmers' Market Association meeting revealed that small farmers/market vendors reuse produce cartons



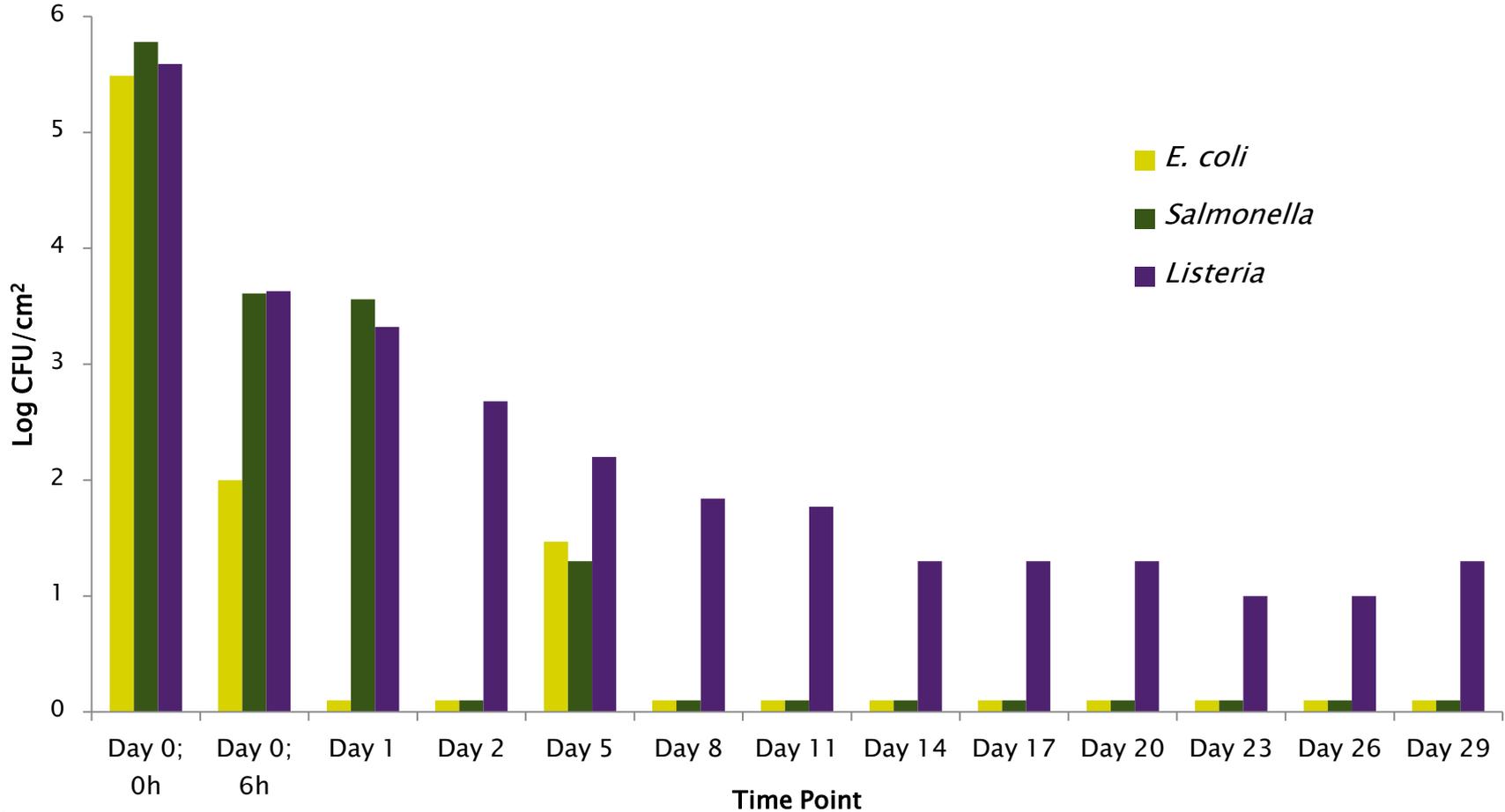
# Produce Box Study- Objective

- ▶ The objective of this ongoing study is to:
  1. Study the survival of pathogenic microorganisms on produce boxes for up to 1 to 2 months
  2. Identify which microorganisms survive the longest on the produce boxes
  3. Develop scientifically validated protocols for small farmers' to reduce cross contamination from produce boxes



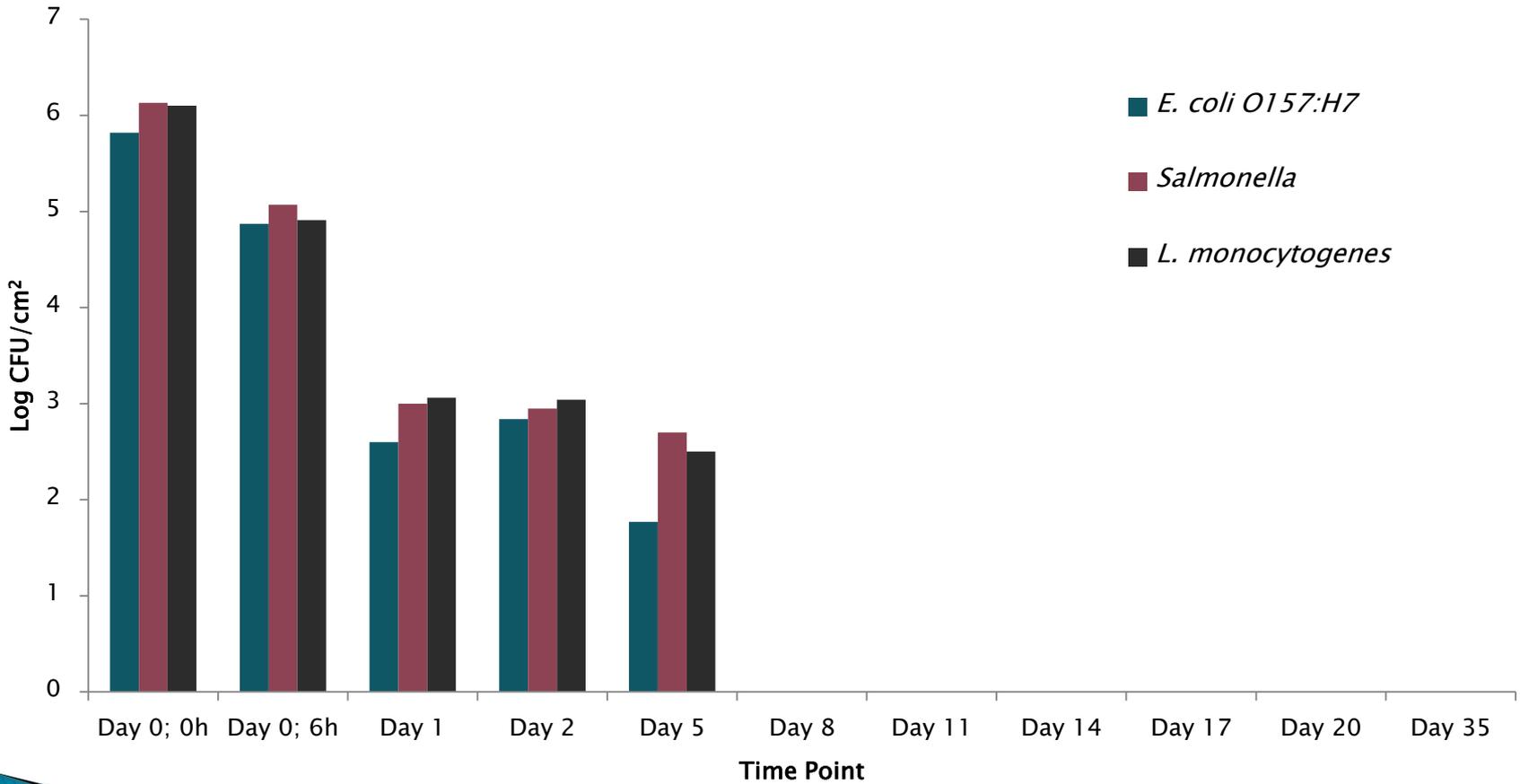
ONGOING

# Produce Box Pilot Study- Pathogenic Surrogates



# Produce Box Current Study– Pathogens

*Salmonella spp.*, *L. monocytogenes*, and *E. coli* O157:H7



*Thank  
You*



# GAPs and Food Packaging Insights

Juan Anciso, Ph.D.,  
Associate Professor and Extension Vegetable Specialist  
Texas A&M AgriLife Extension Service

[j-anciso@tamu.edu](mailto:j-anciso@tamu.edu)

956-968-5581



# What does GAPs mean?

GAPs is an acronym for  
**Good Agricultural Practices**

# Purpose



Good Agricultural Practices or **GAPs** are basic environmental, health and sanitary practices that aid in the production of safe fruits and vegetables.

# Recent Issues



2011, *Listeria monocytogenes* on cantaloupe

-- unknown, facility with environmental samples



2008, *Salmonella* St. Paul on Peppers

-- contaminated irrigation water



2006, *E. coli* 0157:H7 on Spinach

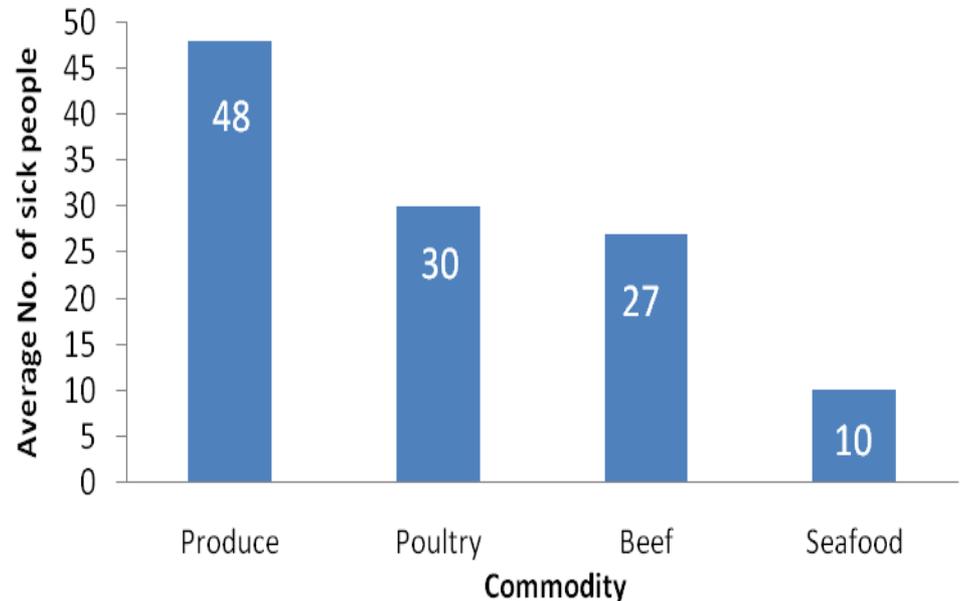
-- spinach crop contaminated by wild hogs or cattle feces

# Why do we need GAPs?

Every year, about 48 million cases of foodborne illnesses result in an estimated:

- 128,000 hospitalizations
- 3,000 needless deaths
- Economic losses between \$5 to 6 billion

Average Number of sick People Per Outbreak (1996-2007)



# GAPs Facts

- 100% control of microorganisms is impossible
- Strategy is to reduce the risk
- System of accountability
- Most of the practices are common sense
- Main change will be Farm Safety Plan/Manual and record keeping





# Requirements

- Have a Food Safety Plan/Manual
- Have a Designated Food Safety Person
- Standard Operating Procedures in place
- Employee Trainings on Hygiene once a year
- Documents
- Records (logs)
- Microbial Water Testing
- 3<sup>rd</sup> Party Audit





# Implementation (easy)

Develop a Food Safety Plan/Manual.

- we can develop one for you
- or go online and develop one yourself ([www.onfarmfoodsafety.org](http://www.onfarmfoodsafety.org))



Designate a person in charge of Food Safety

- either yourself or someone
- display the Name and Phone number



# Implementation (hard)

Most of these things are probably already being done but not written.

The main part of implementation will be keeping logs and records of everything you do for food safety.

In addition to having routine trainings with employees to keep them up to date.

Passing the 3<sup>rd</sup> Party GAPs certification audit.



# Certification/Audit Process



Before you attempt a 3<sup>rd</sup> party audit:

- Go through a training (online – [agrilifefoodsafety.tamu.edu](http://agrilifefoodsafety.tamu.edu) \$40)
- Go through a check list to make sure all necessary processes are in place and all required documentation is available
- Have at least 3 months of records
- Will want to come during production time

# Third Party GAPs Auditors

## **USDA**

<http://www.ams.usda.gov/AMSV1.0/GAPGHPAuditVerificationProgram>

## **NSF-Davis Fresh**

[http://www.nsf.org/business/global\\_food\\_safety\\_standards/globalgap](http://www.nsf.org/business/global_food_safety_standards/globalgap)

## **Primus**

<http://www.primuslabs.com/services/audits.aspx?menuID=2>

## **SQF – Safe Quality Food Institute**

<http://www.sqfi.com/suppliers/certification-steps/>

## **Food Safety Net Services**

<http://www.food-safetynet.com/auditing.html>

## **SCS – Scientific Certification Systems**

[http://www.scs-certified.com/fff/food\\_safety\\_auditing.php#gap](http://www.scs-certified.com/fff/food_safety_auditing.php#gap)



# Third Party GAPs Audit Success

Do not need a perfect score to pass the audit.

Passing the audit is good for one year standing.



## United States Department of Agriculture



This is to verify that The *John Doe Company of Any town, USA*  
has Successfully Passed the Applicable Elements of The

### *USDA Federal-State Audit Program*

GOOD AGRICULTURAL PRACTICES AND GOOD HANDLING PRACTICES

SAMPLE CERTIFICATE

Valid Through  
Sample Only

United States Department of Agriculture

Date

# Food Safety Modernization Act

“(1) IN GENERAL.—

“(A) RULEMAKING.—**Not later than 1 year** after the date of enactment of the FDA Food Safety Modernization Act, .....**shall publish a notice of proposed rulemaking to establish science-based minimum standards** for the safe production and harvesting of those types of fruits and vegetables, .....that are raw agricultural commodities for which the Secretary has determined that such standards minimize the risk of serious adverse health consequences or death.

“(B) include, with respect to growing, harvesting, sorting, packing, and storage operations, **science-based minimum standards related to** soil amendments, hygiene, packaging, temperature controls, animals in the growing area, and **water**;

# Food Safety Modernization Act

The amendment includes the following requirements for exemption:

1. Producers must have annual gross sales less than \$500,000. This includes all subsidiaries and affiliates of a business AND Producers must sell more than half their products directly to consumers (including at farmers markets) or to local restaurants and retailers that in turn sell directly to consumers.
3. FDA has authority to withdraw an exemption from a farm or facility associated with a foodborne illness outbreak.
4. The distance from a facility or farm that is eligible to be a “qualified end-user” was reduced to 275 miles.

# Texas Senate Bill 81

A BILL TO BE ENTITLED AN ACT  
relating to food safety.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:  
SECTION 1. Section 431.2211(a), Health and Safety Code, is  
amended to read as follows:

(a) A person is not required to hold a license under this  
subchapter if the person is:

(1) a person, firm, or corporation that only harvests, packages,  
or washes~~[, or ships]~~ raw fruits or vegetables for shipment at the  
location of harvest;

# Do You Need to be GAP Certified on your Produce Operation?

- Exemption of selling at least 50% through direct marketing and making less than \$500,000
- FDA comes out with the Rules – Probably audits will not be mandatory but Food Safety Plans will be.
- Education, Education, Education will probably be Mandatory.



## United States Department of Agriculture



This is to verify that The *John Doe Company of Any town, USA*  
has Successfully Passed the Applicable Elements of The

### *USDA Federal-State Audit Program*

GOOD AGRICULTURAL PRACTICES AND GOOD HANDLING PRACTICES

SAMPLE CERTIFICATE

Valid Through  
Sample Only

United States Department of Agriculture

Date

# Farm Eggs



**Texas Farmer may sell ungraded eggs but must be labeled "Ungraded"**

**Producer's Name and Address**

**License from appropriate Health Department**

**Ambient air temperature of 45F or less**

# Cloth Totes



**Work well with produce products that are dry**

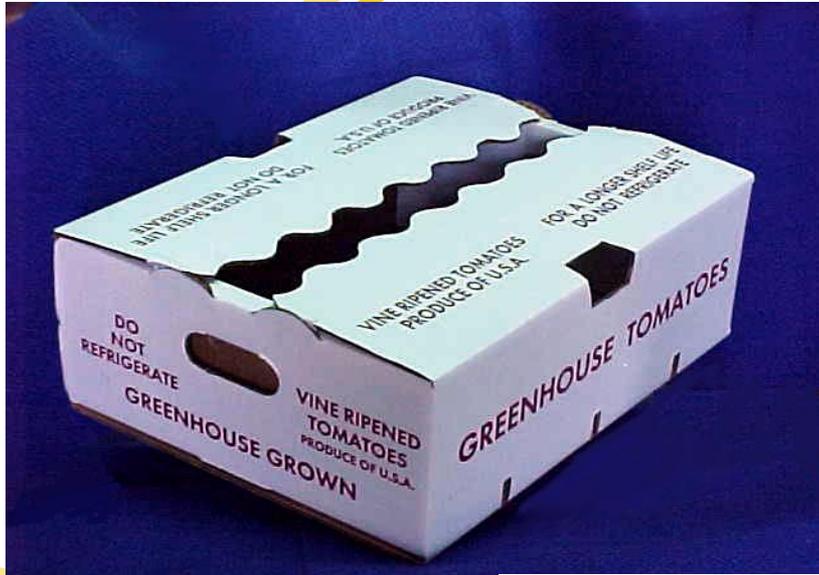
**Do not allow consumers to use or place wet produce items**

**What about co-mingling produce with other items?**

# Cardboard Boxes



# Cardboard Boxes



# Plastic Bags





## Helpful Links

**GAPs information and for-sale items**

[www.gaps.cornell.edu](http://www.gaps.cornell.edu)

**Family Farm food safety and GAPs Plans**

[www.onfarmfoodsafety.org](http://www.onfarmfoodsafety.org)

**Texas GAPs online training**

<https://agriferegister.tamu.edu/events/details.cfm?id=797>

**Texas AgriLife Food Safety Website**

<http://agriflifefoodsafety.tamu.edu>

**AgriLife Food Safety App**

Apple App Store

**Texas GAPs and GHPs Food Safety Training Curriculum Extension Publication B-6244 (\$10)**

<http://agriflifebookstore.org>

# Winter Garden Produce Carnes Farms

Established 1978 &  
Growing fresh vegetables since 1950

# Located in Uvalde, Texas



# Growers of Cabbage, Onions, Broccoli



# Family Owned and Operated

Carnes Farms and Winter Garden Produce are a third generation agricultural operations. Our family has been in the agriculture and produce industry in Texas since 1950. We currently farm over 4000 acres around the Uvalde area in South Texas. On those farms, we have grown a wide range of agricultural products, one of the most important being vegetables. My family began marketing and shipping a select group of those in 1992. My father, Eddy Carnes, along with his father and brother formed Winter Garden Produce to ship product grown on our farms. At the present time, we harvest and ship over 1 million packages per year and have annual sales over 10 million.

# Winter Garden Produce

- Ship in RPC, Corrugated or individually wrapped.



01/19/2008

# Growing seasons and acreage

- Cabbage-1000 acres  
Harvest Oct 15<sup>th</sup> -  
May 31<sup>st</sup>
- Onions-800 acres  
Harvest May 1<sup>st</sup>-  
July 1<sup>st</sup>
- Broccoli-400 acres  
Harvest Nov 15<sup>th</sup>-  
March 31<sup>st</sup>



# Current Operations Structure

Eddy Carnes

Farm Manager

[edcarnes@wintergardenproduce.com](mailto:edcarnes@wintergardenproduce.com)

J Carnes

Sales Manager / Shed Manager

[jcarnes@wintergardenproduce.com](mailto:jcarnes@wintergardenproduce.com)

Sharron Carnes

Comptroller and Corporate Manager

[scarnes@wintergardenproduce.com](mailto:scarnes@wintergardenproduce.com)

Mike Willis

Food Safety / Quality Control

[mwillis@wintergardenproduce.com](mailto:mwillis@wintergardenproduce.com)

# Winter Garden Produce

- We are leaders in Texas in the area of food safety. Because of the events of the past couple of years involving food borne pathogens involving fresh produce we believe we as an industry need to take the extra step to assure the consumer that fresh produce is as safe as good science and good agricultural practices can make it. We have supported the California Leafy Greens Marketing Agreement and standardizing procedure through the food modernization act.

# Food Safety

- Primus Certified at the shed level since 2003
- First dealings with documented food safety date back to mid nineties with H.E.B
- After 2006 spinach outbreak things changed. GAP's were the next step.



# On the farm food safety



# On the farm food safety

- Many of the things were already being done just not documented
- Biggest unknowns are wildlife
- Employee training
- Testing procedures are the one of the most costly aspects



# Changes since 2006

100% Field Pack  
Less handling

- Longer shelf life, less food safety concerns.

More testing

- We see more and more testing (this includes water, soil, product, and packaging).

Frequency

- Audits, cleaning, and testing

# Trends going forward

- Locally grown
- Know your farmer, know your food.
- Sustainability
- Diversification



## Field packing operations

Better Quality/Less Handling



## Sustainability

3<sup>rd</sup> generation Farm. Over 4000 acres of Family owed farms



Diversification

Legend: Proposed New Rules  
Regular Print: Proposed new language

Subchapter FF. Farmers' Markets.

§229.701. Purpose and Applicability.

(a) The purpose of this subchapter is to implement rules under the Health and Safety Code (HSC), Chapter 437, as they relate to food temperature requirements and permits at farmers' markets.

(b) This subchapter does not apply to a farmers' market in a county:

- (1) that has a population of less than 50,000; and
- (2) over which no local health department has jurisdiction.

(c) A person who sells or provides samples of meat or poultry or food containing meat or poultry shall comply with HSC, Chapter 433.

(d) This section does not authorize the sale of or provision of samples of raw milk or raw milk products at a farmers' market.

§229.702. Definitions. The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise.

(1) Department -- The Department of State Health Services.

(2) Farmers' market -- A designated location used primarily for the distribution and sale directly to consumers of food by farmers and other producers.

(3) Fish -- As defined in §229.162 of this title (relating to Definitions).

(4) Food -- An agricultural, apicultural, horticultural, silvicultural, viticultural, or vegetable product for human consumption, in either its natural or processed state, that has been produced or processed or otherwise has had value added to the product in this state. The term includes:

- (A) fish or other aquatic species;
- (B) livestock, a livestock product, or livestock by-product;
- (C) planting seed;
- (D) poultry, a poultry product, or a poultry by-product;

(E) wildlife processed for food or by-products;

(F) a product made from a product described in this paragraph by a farmer or other producer who grew or processed the product; or

(G) produce.

(5) Potable water -- Drinking water.

(6) Poultry -- A live or dead domesticated bird.

(7) Produce -- Fresh fruits or vegetables.

(8) Producer -- A person or entity that produces agricultural products by practice of the agricultural arts upon land that the person or entity controls.

(9) Sample -- A bite-sized portion of food or foods offered free of charge to demonstrate its characteristics and does not include a whole meal, an individual portion, or a whole sandwich.

(10) Potentially hazardous food (time/temperature control for safety food) -- As defined in §229.162 of this title.

§229.703. Permits. A person who sells potentially hazardous food (time/temperature control for safety food) at a farmers' market shall obtain a temporary food establishment permit.

§229.704. Temperature Requirements.

(a) Potentially hazardous food (time/temperature control for safety food) sold, distributed, or prepared on-site at a farmers' market, and potentially hazardous food (time/temperature control for safety food) transported to or from a farmers' market shall meet the requirements of this section.

(b) Frozen food. Stored frozen foods shall be maintained frozen.

(c) Hot and cold holding. All potentially hazardous food sold at, prepared on site at, or transported to or from a farm or farmers' market at all times shall be maintained at:

(1) 5 degrees Celsius (41 degrees Fahrenheit) or below; or

(2) 54 degrees Celsius (135 degrees Fahrenheit) or above.

(d) Cooking of raw animal foods. Raw animal foods shall be cooked to heat all parts of the food to the following temperatures:

(1) poultry, ground poultry, stuffing with poultry, meat and fish to 74 degrees Celsius (165 degrees Fahrenheit) for 15 seconds;

(2) ground meat, ground pork, ground fish, and injected meats to 68 degrees Celsius (155 degree Fahrenheit) for 15 seconds;

(3) beef, pork, meat, fish, and raw shell eggs for immediate service to 63 degrees Celsius (145 degrees Fahrenheit) for 15 seconds;

(4) prepackaged, potentially hazardous food (time/temperature control for safety food), that has been commercially processed, to 57 degree Celsius (135 degrees Fahrenheit);

(5) a raw or undercooked whole-muscle, intact beef steak may be served if:

(A) the steak is labeled to indicate that it meets the definition of "whole-muscle, intact beef" as defined in §229.162(115) of this title (relating to Definitions); or

(B) the steak is cooked on both the top and bottom to a surface temperature of 63 degrees Celsius (145 degrees Fahrenheit) or above and a cooked color change is achieved on all external surfaces; and

(6) raw animal foods cooked in a microwave oven shall be:

(A) rotated or stirred throughout or midway during cooking to compensate for uneven distribution of heat;

(B) covered to retain surface moisture;

(C) heated to a temperature of at least 74 degrees Celsius (165 degrees Fahrenheit) in all parts of the food; and

(D) allowed to stand covered for 2 minutes after cooking to obtain temperature equilibrium;

(7) fruits and vegetables that are cooked shall be:

(A) heated to a temperature of 57 degrees Celsius (135 degrees Fahrenheit).

(e) Eggs. A farmer or egg producer that sells eggs directly to the consumer at a farm or farmers' market shall maintain the eggs at an ambient air temperature of 7 degrees Celsius (45 degrees Fahrenheit) as specified in §229.164 (c)(1)(C) of this title (relating to Food).

## Farmers' Markets

### Frequently Asked Questions

**1. What is the definition of a farmer?**

A farmer is a person who has ownership of, or financial and/or productive responsibility for producing, an agricultural product intended for use as a food or raw material. The term usually applies to people who do some combination of raising field crops, orchards, vineyards, poultry, aqua-culture or some other form of livestock. A farm is usually owned by that person or under direct control of that person.

**2. What is the definition of a farmers' market?**

A farmers' market is a designated location used primarily for the distribution and sale of food directly to consumers by farmers and other producers.

**3. What is a farm stand?**

A farm stand is defined as a premise owned and operated by a producer of agricultural food products at which the producer or other persons may offer for sale produce or foods.

**4. Is a farmers' market a food service establishment?**

No. A farmers' market is not a food service establishment.

**5. Do I need a temporary food establishment permit to sell food at a farmers' market?**

A temporary food establishment permit is not required to sell whole, intact unprocessed fruits and vegetables and pre-packaged non-potentially hazardous food/time temperature for safety foods.

A temporary food establishment permit is required to sell all other potentially hazardous food/time temperature control for safety foods.

**6. What is a potentially hazardous food/temperature controlled for safety food (PHF/TCS)?**

A potentially hazardous food (PHF) is a food that requires time and temperature control to limit pathogen growth or toxin production. In other words, a potentially hazardous food must be held under proper temperature controls, such as refrigeration to prevent the growth of bacteria that may cause human illness. A PHF/TCS is a food that: contains protein, moisture (water activity greater than 0.85), and is neutral to slightly acidic (pH between 4.6 -7.5).

**7. May I provide/distribute samples at a farmers' market?**

Yes.

To provide samples of food at a farm or farmers' market, you must:

- Distribute the samples in a sanitary manner
- Have potable water available

- Wash any produce intended for sampling with potable water to remove any visible dirt or contamination
- When preparing the samples, either wear clean, disposable plastic gloves or observe proper hand washing techniques immediately before preparation;
- Use smooth, nonabsorbent, and easily cleaned (i.e. metal or plastic) utensils and cutting surfaces for cutting samples, or use disposable utensils and cutting surfaces;
- Samples of cut produce and other potentially hazardous foods shall be maintained at a temperature of 41°F or below and discarded within two hours after cutting or preparation.

A permit is not required to provide samples at a farmers' market.

**8. What is a sample?**

A sample is defined as a bite size portion, not a full serving.

**9. Do I need a temporary food establishment permit to provide samples at a farmers' market?**

No. A temporary food establishment permit is not required to provide samples at a farmers' market.

**10. What are proper hand washing techniques?**

- Vigorous friction on the surfaces of the lathered fingers, finger tips, areas between the fingers, hands and exposed arms (or vigorous rubbing the surrogate prosthetic devices for hands and arms) for at least 10 to 15 seconds, followed by;
- thorough rinsing under clean, running warm water; and
- immediately following the cleaning procedure with thorough drying of cleaned hands and arms (or surrogate prosthetic devices) using individual, disposable towels

**11. What are the requirements for performing a cooking demonstration at a farmers' market?**

For a farmers' market cooking demonstration, the following is required:

- A person with a certified food manager's license supervising the demonstration; and
- Compliance with the requirements for a temporary food establishment permit.

**12. What are the requirements for providing sample as a part of a cooking demonstration at a farmers' market?**

A farmers' market may distribute samples as part of the cooking demonstration if:

- the samples are a part of the "bona fide educational purpose"; and
- the samples are disposed of within 2 hours of preparation.

**13. Do I need a temporary food establishment permit to perform a cooking demonstration at a farmers' market?**

Cooking demonstrations conducted by a farmers' market for a "bona fide educational purpose," are exempt from having to obtain a temporary food establishment permit.

**14. What is a 'bona fide educational purpose'?**

A bona fide educational purpose means the cooking demonstration made in good faith or made with earnest intent to instruct and educate.

**15. Can raw milk be sold at a farmers' market?**

No. Raw milk cannot be sold at a farmers' market.

**16. Will the Department of State Health Services conduct inspections at farmers' market?**

Yes. The Texas Department of State Health Services has the authority to conduct inspections of all food vendors who are required to obtain a temporary food establishment permit at a farmers' market.

**17. Will the Department be required to write rules concerning farmers' markets in a separate chapter outside the Texas Food Establishment Rules?**

Yes. The department is in the process of developing the rule concerning the regulation of farmers' markets to comply with the requirements of Senate Bill 81 of the 2<sup>nd</sup> Legislative session and House Bill 1382 of the 83<sup>rd</sup> legislative session.

**18. Do I need to have food handler's card or food manager certification to sell food at farmers' market?**

No. A temporary food establishment operating under the jurisdiction of the Department of State Health Service is not required to obtain a food handlers card or a certified food manger certificate. If the food vendor is associated with a 'bona fide' cooking demonstration, the farmers' market must have a certified food manager.

**19. Can a cottage food production operation sell food at a farmers' market?**

Yes. Foods produced at a cottage food production operation (CFPO) may be sold at farmers' market The CFPO must comply with the guidelines as required in the law concerning Cottage Food Production Operations.

**20. Can I sell yard eggs at a farmers' market?**

Yes. To sell farm eggs at a farmers' market the following is required:

- You must have a temporary food establishment license; and
- Eggs must be maintained at an ambient air temperature of 45°F and below; and
- Eggs must be properly labeled as "ungraded" with safe handling instructions.

**21. May I honey at a farmers' market?**

Yes. Honey for sale must be processed and properly labeled by an entity that has a food manufacturer's license.

**22. May I sell my own cattle or poultry that I have slaughtered at a licensed and inspected facility?**

Yes. Meat or poultry products must come from animals processed in compliance with the regulations for livestock processing (Texas Health & Safety Code Chapter 433) and a temporary food establishment permit is required.

**23. May I sell fish and other aquatic species at a farmers' market?**

Yes. Commercial fishermen must possess a license from the TPWD or the fish and other cultured species must be produced and raised in a facility that has an aquaculture license from TDA and a temporary food establishment permit is required.

DRAFT



## Farmers' Markets

For comments or questions on proposed rules, please contact Chris Sparks, Manager at [christopher.sparks@dshs.state.tx.us](mailto:christopher.sparks@dshs.state.tx.us)

### Proposed Rule 229 701-704 Farmer Market Rules

During the 82nd Legislature, Regular Session 2011, and the 83rd Legislature, Regular Session 2013, the Texas Legislature enacted Senate Bill 81 and House Bill 1382 that amend the Health and Safety Code (HSC), Chapter 437, by creating and amending provisions for farmers' markets. These laws became effective September 1, 2011 and September 1, 2013.

Farmers' Markets are exempt from the requirements of a food service establishment and do not have to comply with the Texas Food Establishment Rules. Permits may be issued and temperature requirements are necessary for potentially hazardous foods (time/temperature control for safety (PHF/TCS) food. The Department of State Health Services or local health authority may issue temporary food establishment permits to food vendors who sell potentially hazardous foods. The Department of State Health Services or local health authority may not require permitting for sampling or cooking demonstrations that are conducted for bona fide educational purposes.

#### For Farmers' Markets:

- A farmers' market is defined as a designated location used primarily for the distribution and sale directly to consumers of food by farmers or other producers.
- Producers are defined as a person or entity that produces agricultural products by practice of the agricultural arts upon land that the person or entity controls.
- Food is defined as agricultural, apicultural, horticultural, silvicultural, viticultural or vegetable product for human consumption, in either its natural or processed in this state. The term includes:
  - Fish or other aquatic species,
  - Livestock, a livestock product, or a livestock by-product,
  - Planting seed,
  - Poultry, a poultry product, or a poultry by-product,
  - Wildlife processed for food or by-products,
  - Produce
  - A product made from a product described above by a farmer or other producer who grew or processed the product;
- A farmers' market may serve samples of food if
  - Samples are served in a sanitary manner,
  - Served while wearing clean, or disposable plastic gloves when preparing samples and observing proper hand washing techniques immediately before preparing samples,
  - The produce intended for sampling is washed in potable water to remove soil or other visible material,
  - Potable water is available for use,
  - All potentially hazardous food is maintained at 41°F or below or disposed of within two hours after cutting or preparing; and,
  - Utensil and cutting surfaces used for cutting samples are smooth, non-absorbent, and easily cleaned or disposed of.
- A person who sells or provides a sample of meat or poultry or food containing meat or poultry must comply with Health and Safety Code, Chapter 433.
- A person who sells fish must have it processed by a licensed and inspected retail establishment. The fish has to be caught or raised by a person or entity that has a

commercial fisherman's license from the Texas Parks and Wildlife Department (TPWD) or an aquaculture license from the Texas Department of Agriculture (TDA).

A potentially hazardous food (PHF) is a food that requires time and temperature control for safety (TCS) to limit pathogen growth or toxin production. In other words, a food must be held under proper temperature controls, such as refrigeration to prevent the growth of bacteria that may cause human illness. A PHF/TCS is a food that: contains protein, moisture (water activity greater than 0.85), and is neutral to slightly acidic (pH between 4.6 -7.5).

The Department of State Health Services is in the process of developing the rule, Texas Administrative Code, Title 25, Part 1, Section 229.701, concerning farmers' markets.

**[Proposed Rule 229 701-704 Farment Market Rule](#)** (pdf 96 KB)

**[Frequently Asked Questions - Farmers' Market](#)** (psf 189 KB)

*Last updated October 31, 2013*



FOOD ESTABLISHMENTS GROUP  
STANDARD OPERATING PROCEDURES AND POLICIES

**FARM EGGS**

October 7, 2010

**Subject: Requirements for Retail Sale and Use of Farm Eggs**

Retail food establishments are not allowed to use ungraded eggs in their food service operation. According to the Texas Food Establishment Rules (TFER), food must be received from an approved source and licensed by the regulatory authority. More specifically, shell eggs must be received clean, sound and meet Grade B requirements. Shell eggs must be received in refrigerated equipment that maintains an ambient air temperature of 7 degrees Celsius (45 degrees Fahrenheit) or less. Shell eggs that have not been specifically processed to destroy all live *Salmonellae* before distribution to the consumer by retail establishments must include the following safe handling statement on the label of the shell eggs:

**SAFE HANDLING INSTRUCTIONS:** *To prevent illness from bacteria: keep eggs refrigerated, cook eggs until yolks are firm, and cook foods containing eggs thoroughly.*

**Requirements for Local Farmers:**

1. A Texas farmer who wishes to sell farm eggs produced by their own flocks directly to the consumer at Farmers' Markets must be licensed by the appropriate regulatory health authority. Under DSHS jurisdiction, the farmer must obtain a Roadside Vendor License for selling at Farmers Markets and Retail Food License for the Central Preparation Facility (Commissary). The farm eggs must be labeled with producer's name & address and be labeled as "ungraded" in legible printed boldface type. Raw shell eggs must be maintained at an ambient air temperature of 45 degrees Fahrenheit or less. These shell eggs must include the following safe handling statement on the label of the shell eggs: **SAFE HANDLING INSTRUCTIONS:** *To prevent illness from bacteria: keep eggs refrigerated, cook eggs until yolks are firm, and cook foods containing eggs thoroughly.*
2. A Texas farmer may sell "ungraded" farm eggs produced by their own flocks directly to the consumer if the local farmer is licensed by the local health authority (DSHS or local health department, depending on the location). The farm eggs must be labeled with producer's name & address and labeled as "ungraded" in legible printed boldface type. Raw shell eggs must be maintained at an ambient air temperature of 45 degrees Fahrenheit or less. These shell eggs must include the following safe handling statement on the label of the shell eggs: **SAFE HANDLING INSTRUCTIONS:** *To prevent illness from bacteria: keep eggs refrigerated, cook eggs until yolks are firm, and cook foods containing eggs thoroughly.*

The farmer is required to obtain a retail food establishment license and meet the structural requirements for a food service establishment. Additional information regarding these requirements can be viewed at: <http://www.dshs.state.tx.us/foodestablishments/startnew>.

3. A Texas farmer may sell farm eggs produced by their own flocks to food service establishments provided the eggs are graded. These farm eggs cannot exceed egg tolerances of Grade B standards and must be labeled according to all applicable laws. The local farmer is now classified as a producer and will be required to be licensed with the Texas Department of Agriculture (TDA). For additional information regarding TDA's requirements, contact Rick Garza, Coordinator for Commodity Programs at (512) 936-2430. The farm eggs must be received and stored at an ambient air temperature of 45 degrees Fahrenheit or less. The farm eggs must also include the following safe handling statement on the label of the shell eggs:  
***SAFE HANDLING INSTRUCTIONS: To prevent illness from bacteria: keep eggs refrigerated, cook eggs until yolks are firm, and cook foods containing eggs thoroughly.***

### **Requirements for Retail Food Establishments:**

1. Food service establishments must receive shell eggs that are clean, sound and do not exceed egg tolerances of Grade B standards. This means that shell eggs must be graded to indicate that the above criteria are met. Raw shell eggs must be received in refrigerated equipment that maintains an ambient air temperature of 45 degrees Fahrenheit or less. These shell eggs must include the following safe handling statement on the label of the shell eggs: ***SAFE HANDLING INSTRUCTIONS: To prevent illness from bacteria: keep eggs refrigerated, cook eggs until yolks are firm, and cook foods containing eggs thoroughly.***
2. Ungraded eggs cannot be used in a retail food establishment.

### **Texas Department of State Health Services (DSHS):**

#### **Food Establishment Group - Texas Food Establishment Rules (TFER) requirements:**

§229.164(b)(1)(A) states “food must be obtained from sources that comply with applicable laws and are licensed by the state regulatory authority having jurisdiction over the processing and distribution of the food.”

§229.164(c)(1)(C) states “Raw shell eggs shall be received in refrigerated equipment that maintains an ambient air temperature of 7 degrees Celsius (45 degrees Fahrenheit) or less.”

§229.164(c)(3) states “Shell eggs shall be received clean and sound and may not exceed the restricted egg tolerances for U.S. Consumer Grade B as specified in 7 CFR 56, Voluntary Grading of Shell Eggs and United States Standards, Grades, and Weight Classes for Shell Eggs and 9 CFR 590, Inspection of Eggs and Egg Products.”

For additional information regarding retail food establishment, please contact Food Establishments Group at (512) 834-6753 or view our requirements at: [www.dshs.state.tx.us/foodeestablishments](http://www.dshs.state.tx.us/foodeestablishments).

### **Foods Group requirements:**

Firms that engage in selling food products to any entity other than the final consumer are required to obtain a food distributor license, a warehouse operator license, or a food distributor registration. For additional information regarding requirements for wholesalers and distributors, please contact Foods Group at (512) 834-6670 or visit their website at: [www.dshs.state.tx.us/foods](http://www.dshs.state.tx.us/foods).

### **Texas Department of Agriculture (TDA), Egg Law Sections:**

The TDA Egg Quality Program ensures that the eggs sold to Texas consumers meet the standards of quality, grade and size as those adopted by the USDA and the Federal Food and Drug Administration. TDA licenses egg dealer-wholesalers, processors and brokers, and conducts inspections of eggs at packing plants, distribution centers and retail outlets. Eggs found out of compliance are subject to a stop-sale order. Licensees who first establish the grade of eggs are required to pay an egg inspection fee and must submit monthly egg reports to ensure that the correct amount of special fees are paid.

An exemption to the licensing requirements of the Egg Law, Section 15.2, is provided for producers that only sell ungraded eggs from the production of their own flocks directly to the consumer. A stipulation of the exemption is that the eggs be labeled with the producer's name and address. The labeling requirements of the Egg Law, Section 15.8, state that a producer must also label the stock cartons with the word "ungraded", in addition to the producer's name and address in legible printed boldface type. Temperature storage requirements in the Egg Law, Section 15.7, are consistent with the storage requirements of TFER and the federal egg regulations, and require that eggs be stored at 45 degrees Fahrenheit or less and meet specific labeling requirements.

TAC Title 4, Part 1, §15.2(a) states "A license must be obtained from the department by the following: ...(2) each separate facility where eggs are graded and/or stored, packed, or processed; (3) any person who first establishes the grade, size, and classification of eggs offered for sale or sold in this state; (4) any egg broker.

Additional information regarding TDA requirements can be found at: [www.texasagriculture.gov](http://www.texasagriculture.gov).

### **Health & Human Services Food and Drug Administration (FDA), Federal Register:**

The Food and Drug Administration (FDA) published a final rule in the **Federal Register** of December 5, 2000 (65 FR 76092) entitled, "Food Labeling, Safe Handling Statements, Labeling of Shell Eggs; Refrigeration of Shell Eggs Held for Retail Distribution." The final rule applies to shell eggs that have not been specifically processed to destroy all live *Salmonellae* before distribution to the consumer. For these shell eggs, retail establishments must include the following safe handling statement on the label of the shell eggs:

**SAFE HANDLING INSTRUCTIONS:** To prevent illness from bacteria: keep eggs refrigerated, cook eggs until yolks are firm, and cook foods containing eggs thoroughly.

**Focus on Food – Safety, Packaging & Trends Webinar  
December 11, 2012**

Survey

Please take the time to help us evaluate the program content for this workshop/webinar.  
Circle your rating for each topic using a scale of 1 to 5  
(1 = Poor; 3 = Adequate; 5 = Excellent).

1. Session: State Packaging Requirements for Farmers Markets and Retail Sales

1 2 3 4 5

2. Session: Food Safety Risks to Consider When Packaging Products

1 2 3 4 5

3. Session: Packing Products Available

1 2 3 4 5

4. What degree of prior knowledge about packaging did you have before this training?

1 2 3 4 5

5. To what degree did your knowledge and understanding of packaging increase as a result of this training?

1 2 3 4 5

6. Do you currently package meat, produce, dairy or eggs for sale at farmers markets or retailers? Yes No

7. Do you know if you currently meet all packaging standards? Yes No

8. Are you interested in participating in future packaging/food safety training? Yes No

9. If yes, what other topic(s) interest you?

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

10. Would you recommend this training to another person? Yes No

**Thank you for taking the time to provide your valuable feedback.**