



Food Safety Practices on U.S. Produce Farms Before FSMA

Presented by:

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Sponsored by the IAFP Foundation

Organized by the IAFP Fruit and Vegetable Safety & Quality PDG





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- **Gregory M. Astill** joined ERS as a Research Economist for the Crops Branch in the Markets and Trade Economics Division in 2016. His work focuses on production economics in U.S. agriculture, including issues on food safety and the food safety practices used by fruit and vegetable growers and processors. His previous research addressed the economics of biogas production from livestock waste using anaerobic digesters.
- **Travis Minor** is the Cross-Commodity Analyst for Specialty Crops (which includes fruits and vegetables) with the Crops Branch in the Market and Trade Division of US Department of Agriculture's Economic Research Service (ERS). Travis joined ERS in October 2016, and his current research focuses on food safety systems, farm structure and output, consumer health outcomes, and policy analysis.



United States Department of Agriculture

Food Safety Practices on U.S. Produce Farms Before FSMA

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International Association for Food Protection (IAFP)
Fruit and Vegetable Safety and Quality (FVSQ)
Professional Development Group (PDG)

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Economic Research Service

www.ers.usda.gov



Introduction

- 1999: first national Federal survey on produce food safety was carried out by NASS
- 2011: Food Safety Modernization Act (FSMA) passed
- 2015-16: second national Federal survey carried by ERS and NASS
 - 32.9 percent of growers responded (4,618 observations)
 - 19 produce-heavy states included
- 2018: FSMA's Produce Rule (PR) implemented standards for the reduction of risk of contamination on farms



ERS Produce Food Safety Research



- Before the PR: Grower Survey

- EIB-194, August 2018



- Changes from 1999 to 2016

- Food Control, May 2019



- Retailer FS Demands: Case Study

- Interviews with 9 national retailers, EIB-206, April 2019

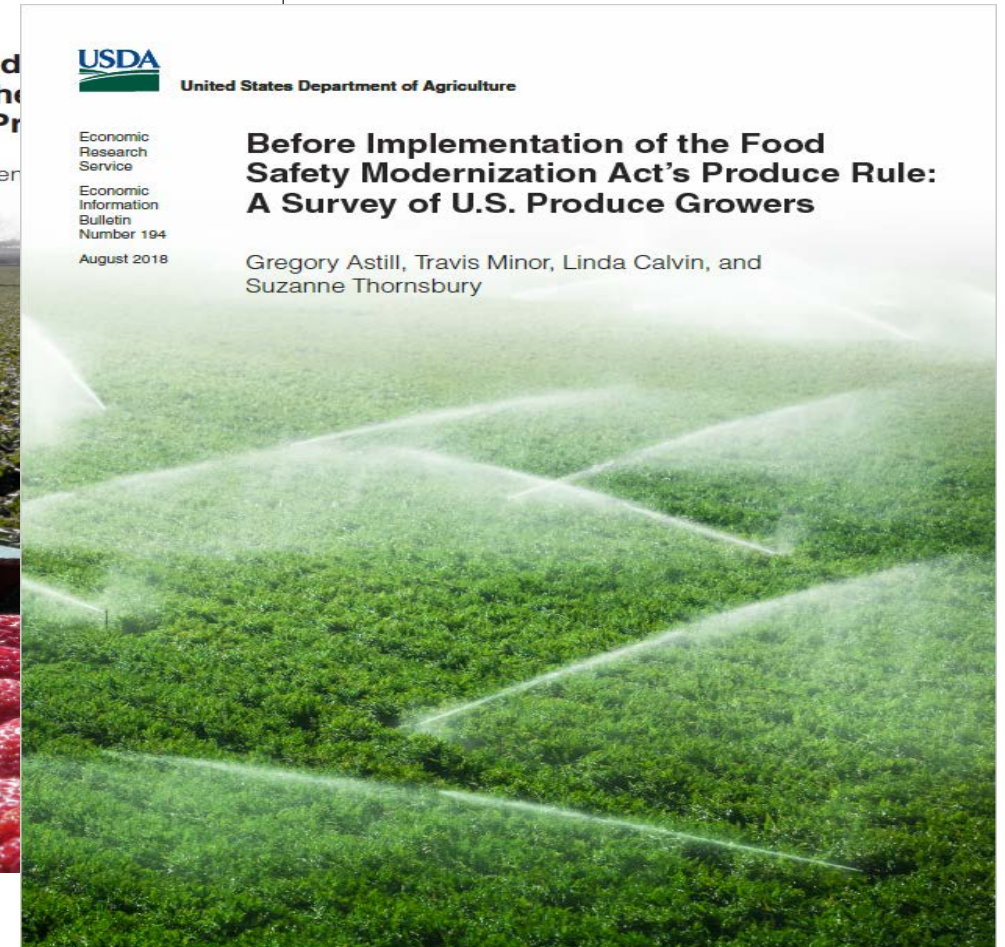
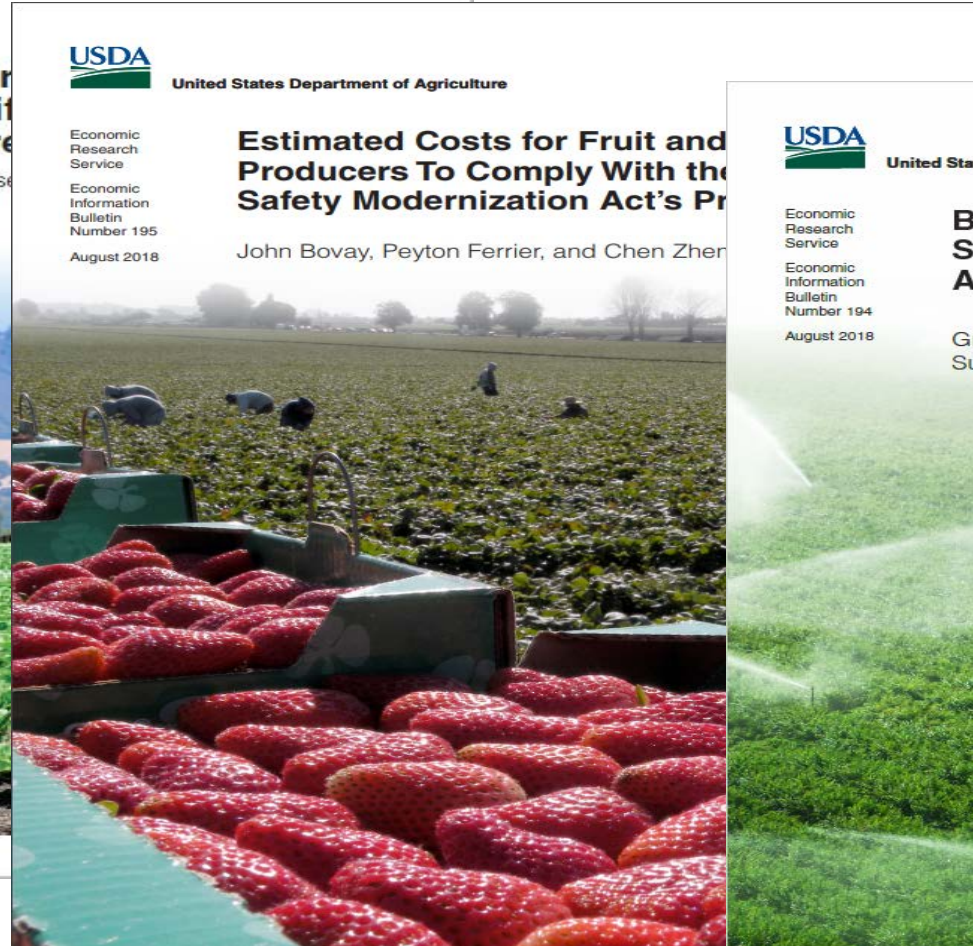
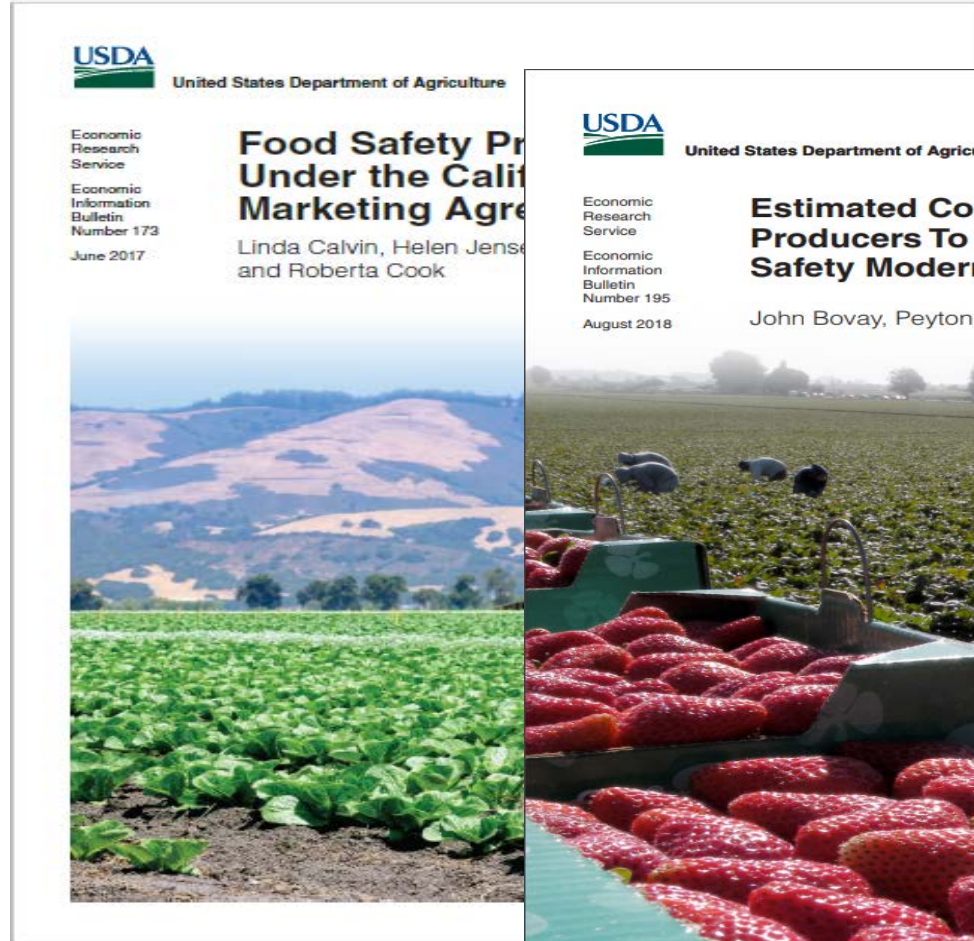


- Growers' Decisionmaking: Case Study

- 6 field-trips to speak with growers across the U.S., EIB-210, June 2019



Recent ERS Produce Food Safety Research



PR Section	Selected Requirements
Personnel qualifications and training	Specific training for food safety person, workers, supervisors, visitors
Health and hygiene	Handwashing and illness measures for workers, supervisors, and visitors
Water application	Water testing and water application restrictions for untreated ground and untreated surface water
Manure products	Application requirements for compost; No contact requirement for raw manure + rec. harvest interval
Animal contamination and harvesting	Visually examine before harvest; Prevent harvest of contaminated produce; Do not destroy habitat
Equipment, tools, buildings, and sanitation	Maintain, inspect, clean, and when appropriate, sanitize

Source: USDA Economic Research Service, EIB-193, “Before Implementation of the Food Safety Modernization Act’s Produce

Rule: A Survey of U.S. Produce Growers”



Size and Coverage

Grower Characteristics

Not covered	Sell less than \$25,000 of produce annually, only grow rarely consumed raw products, or only grow for processing
Qualified exemption	Sell less than \$500,000 of <i>food</i> annually and sell more than half of acreage directly to consumers
Small	Sell \$25,000 to less than \$500,000 of produce annually
Midsize	Sell \$500,000 to less than \$1 million of produce annually
Large	Sell \$1 million to less than \$5 million of produce annually
Very large	Sell \$5 million or more of produce annually

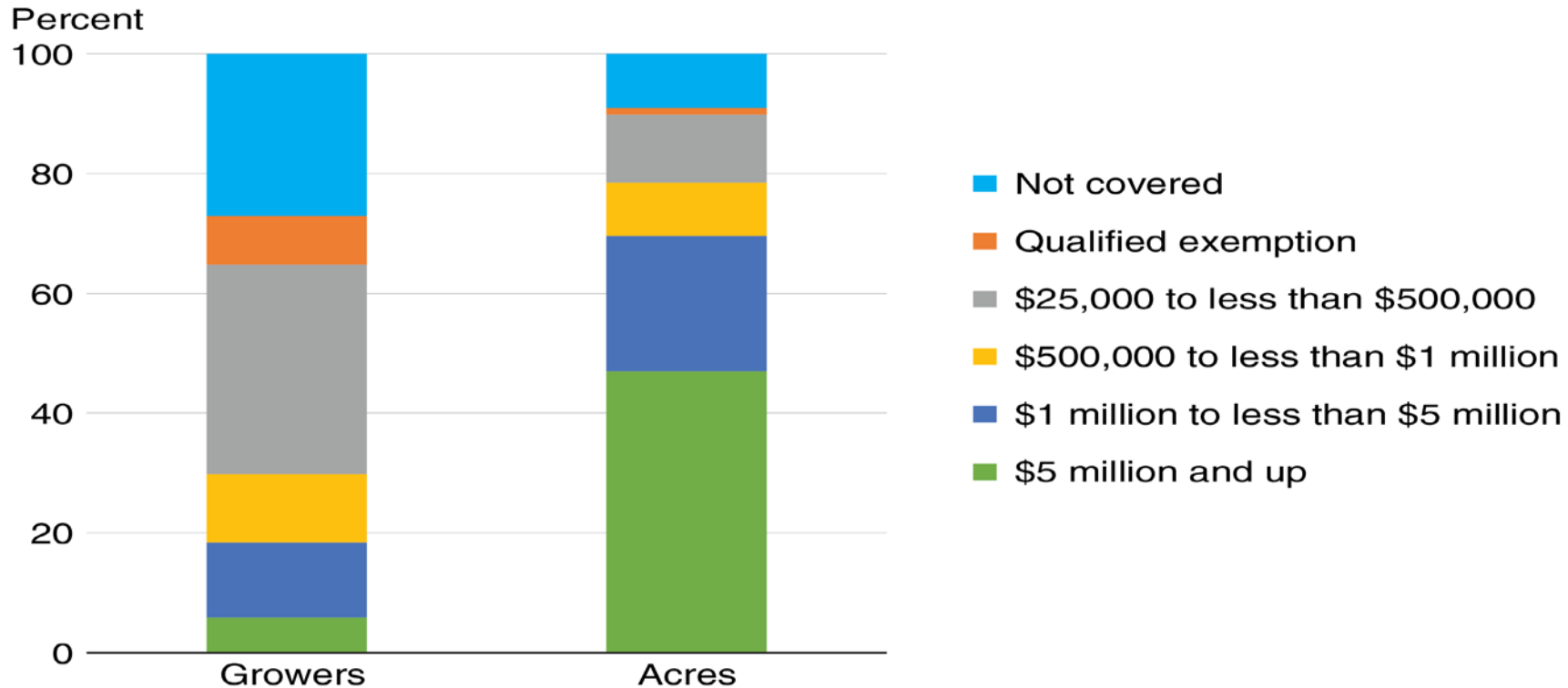
Source: USDA Economic Research Service, EIB-193, "Before Implementation of the Food Safety Modernization Act's Produce

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Before the FSMA PR: A Survey of U.S. Produce Growers

Of produce growers in the sample, 65 percent would be covered by the Produce Rule, but 90 percent of produce acres were operated by growers who would be covered



Note: Dollar values refer to annual grower produce sales

Source: USDA Economic Research Service, Amber Waves, “New Survey Results

Highlight Variation in Food Safety Practices Prior

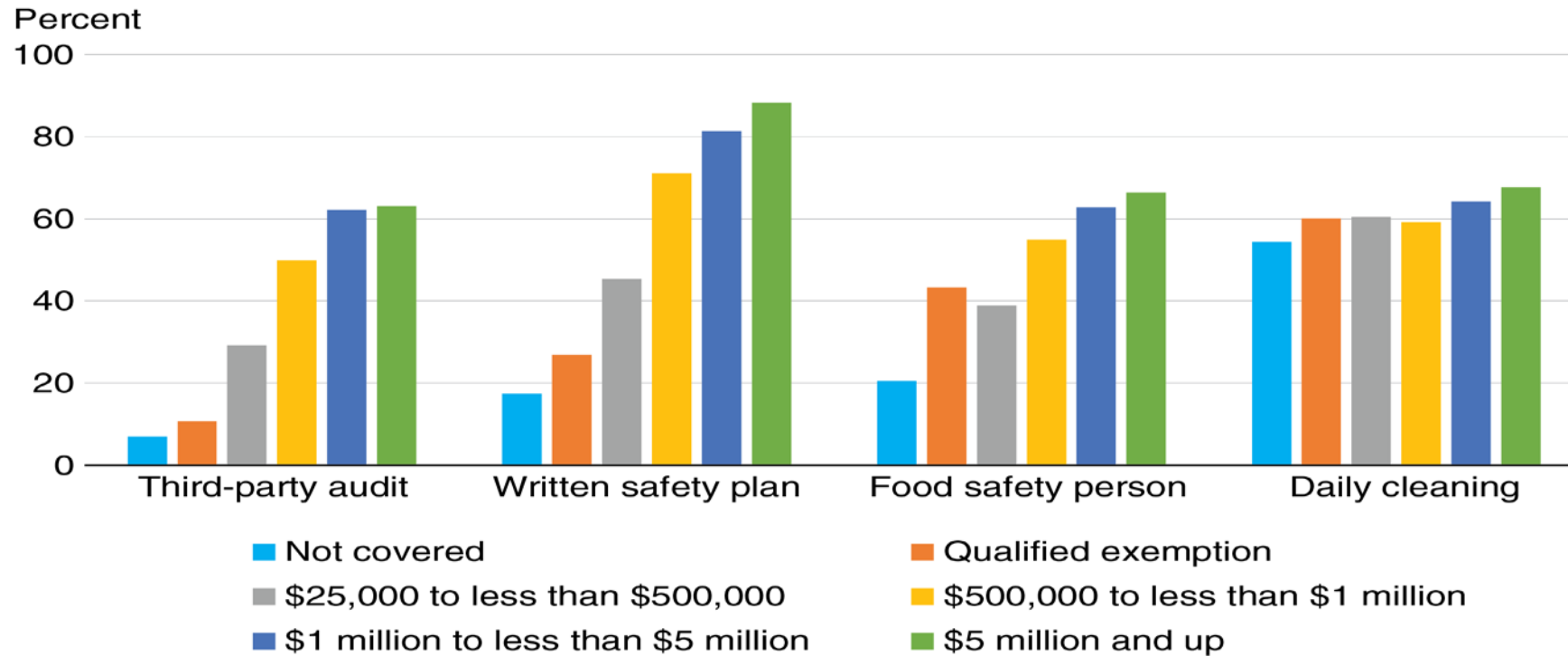
to the Produce Rule”, August 6,

2018.



Before the FSMA PR: A Survey of U.S. Produce Growers

Greater shares of larger growers—than of smaller growers, those with a qualified exemption, or those not covered—use food safety practices



Note: Dollar values refer to annual grower produce sales

Source: USDA Economic Research Service, Amber Waves, “New Survey Results

Highlight Variation in Food Safety Practices Prior

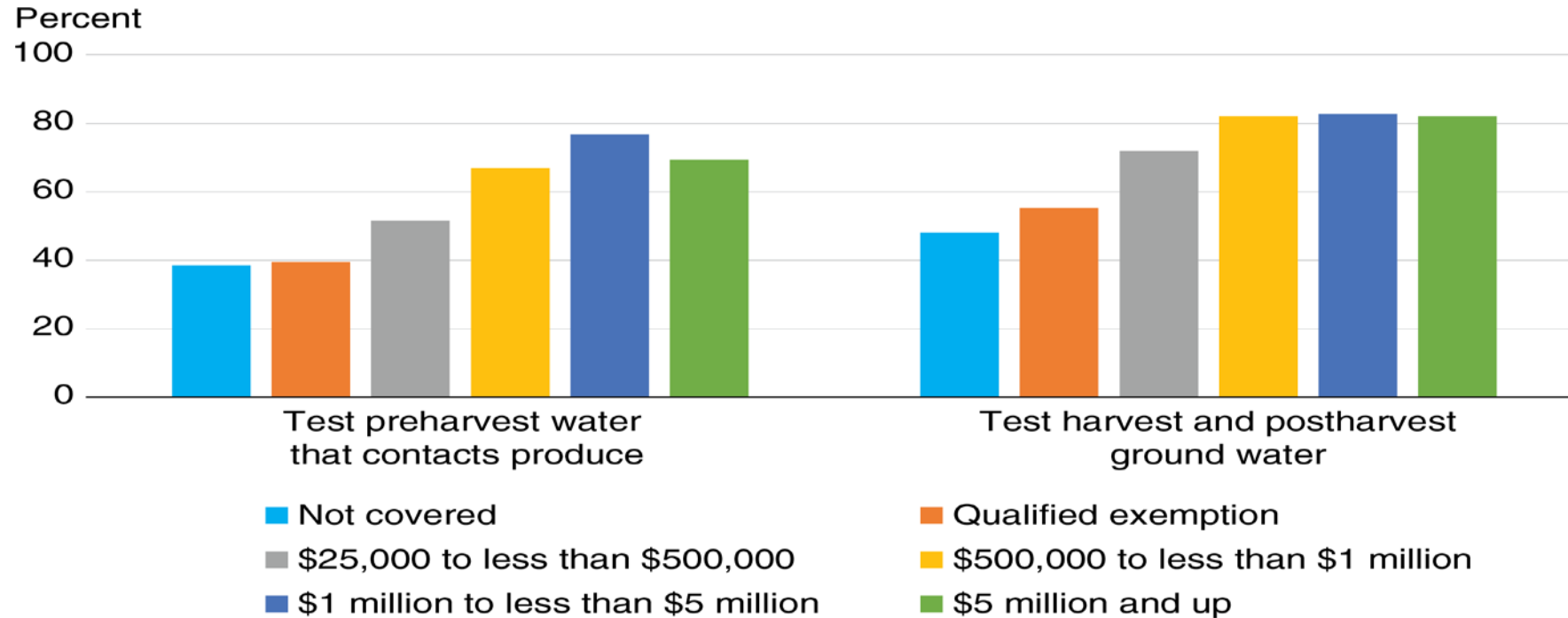
to the Produce Rule”, August 6,

2018.



Before the FSMA PR: A Survey of U.S. Produce Growers

Before the PR's implementation, many growers who used untreated ground and untreated surface water (preharvest activities) or untreated groundwater (in harvest and postharvest activities) that contacted produce tested the water for microbial contamination at least once annually



Note: Dollar values refer to annual grower produce sales

Source: USDA Economic Research Service, Amber Waves, "New Survey Results

Highlight Variation in Food Safety Practices Prior

to the Produce Rule", August 6,

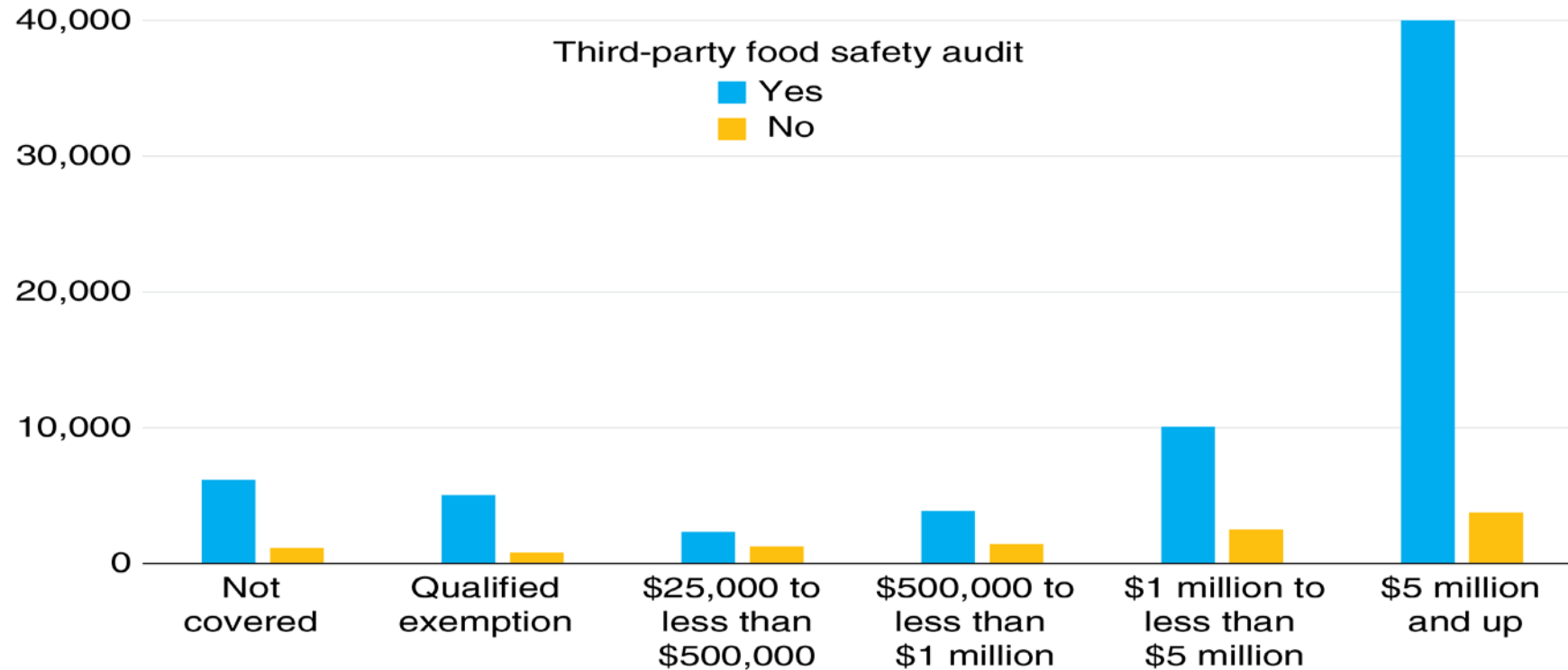
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Before the FSMA PR: A Survey of U.S. Produce Growers

Growers with audits spent 2 to 10 times more on food safety than those without audits

Average selected cost (\$)



Note: Dollar values refer to annual grower produce sales

Source: USDA Economic Research Service, Amber Waves, “New Survey Results

Highlight Variation in Food Safety Practices Prior

to the Produce Rule”, August 6,

2018.



Before the FSMA PR: A Survey of U.S. Produce Growers

- Before PR implementation, many growers had some food safety practices in place:
 - Larger growers did at higher rates
 - But even some not covered or qualified exemption growers did.
- Larger growers spent more on food safety practices
 - Growers with audits spent 2 to 10 times more than those without
- Smaller growers and non-audited growers face the biggest changes to meet the PR standards



Changes in FS Practices from 1999 to 2016 surveys

- Slightly fewer growers use flowing surface irrigation water, slightly more use well water.
- With growth in organic, slightly more growers use manure or compost and about the same proportion compost on-farm.
- While there has been an increase in the portion of growers who have fields adjacent to livestock, a much larger portion fence production areas.
- Most distinctive, there has been a large increase in the portion of growers who wash and sanitize harvest tools daily or weekly.

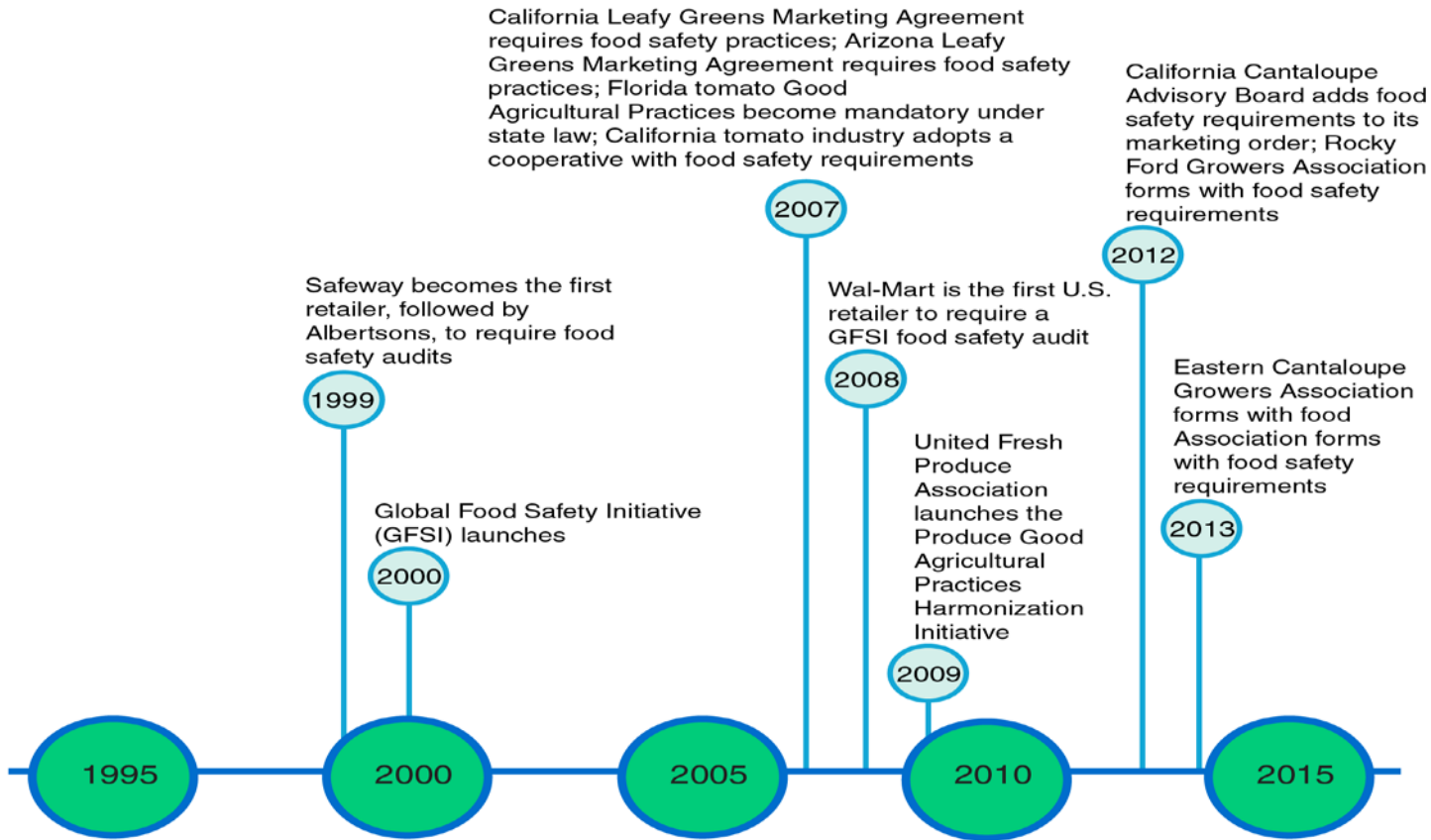
Disclaimer: The findings and conclusions on this slide are those of the authors and should not be construed to represent an official USDA or U.S. Government

determination or policy.



Produce Growers FS: Retailer Demands

Food safety actions by industry



Source: USDA, Economic Research Service, using data from the Arizona Leafy Greens Marketing Agreement (AZ LGMA), 2018, and ERS 2003 report, "Produce, Food Safety, and International Trade: Response to U.S. Foodborne Illness Outbreaks Associated With Imported Produce."

- Commercial buyers have been instrumental in pushing food safety practices forward.
- Many have turned to third-party audits to ensure certain food safety practices.
- Retailer requirements have shaped the current food safety landscape and will determine how the "Produce Rule" affects growers.



Produce Growers FS: Retailer Demands

- How Was the Study Conducted?
 - Researchers at Cornell University interviewed retailers using questions developed jointly with USDA, ERS economists.
 - Interviews were conducted by phone from December 2016 through February 2017.
 - Retailers were selected to obtain the broadest possible geographic representation, a variety of store-format types, and a mix of company sizes.



Produce Growers FS: Retailer Demands

- What Did the Study Find?
 - The PR does not require third-party audits.
 - “...recognize the role that third-party audits can play in promoting food safety.”
 - All retailers interviewed require audits from their suppliers.
 - The retailers expect to continue to require third-party food safety audits to certify that growers conform to the PR.
 - Interviewed retailers require audits for all produce, regardless of federal exemptions.



Produce Growers FS: Retailer Demands

- What Did the Study Find?
 - Some retailers have lost suppliers in the past when new food safety standards were introduced because of the increased cost of compliance.
 - This may happen again, particularly for smaller suppliers.
 - Retailers believe implementation of the PR will not drastically affect their growers.
 - Greatest impact may be on growers outside these supply chains.
 - (direct-to-consumer sellers, smaller retail suppliers, and other less traditional sellers)



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Questions?

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