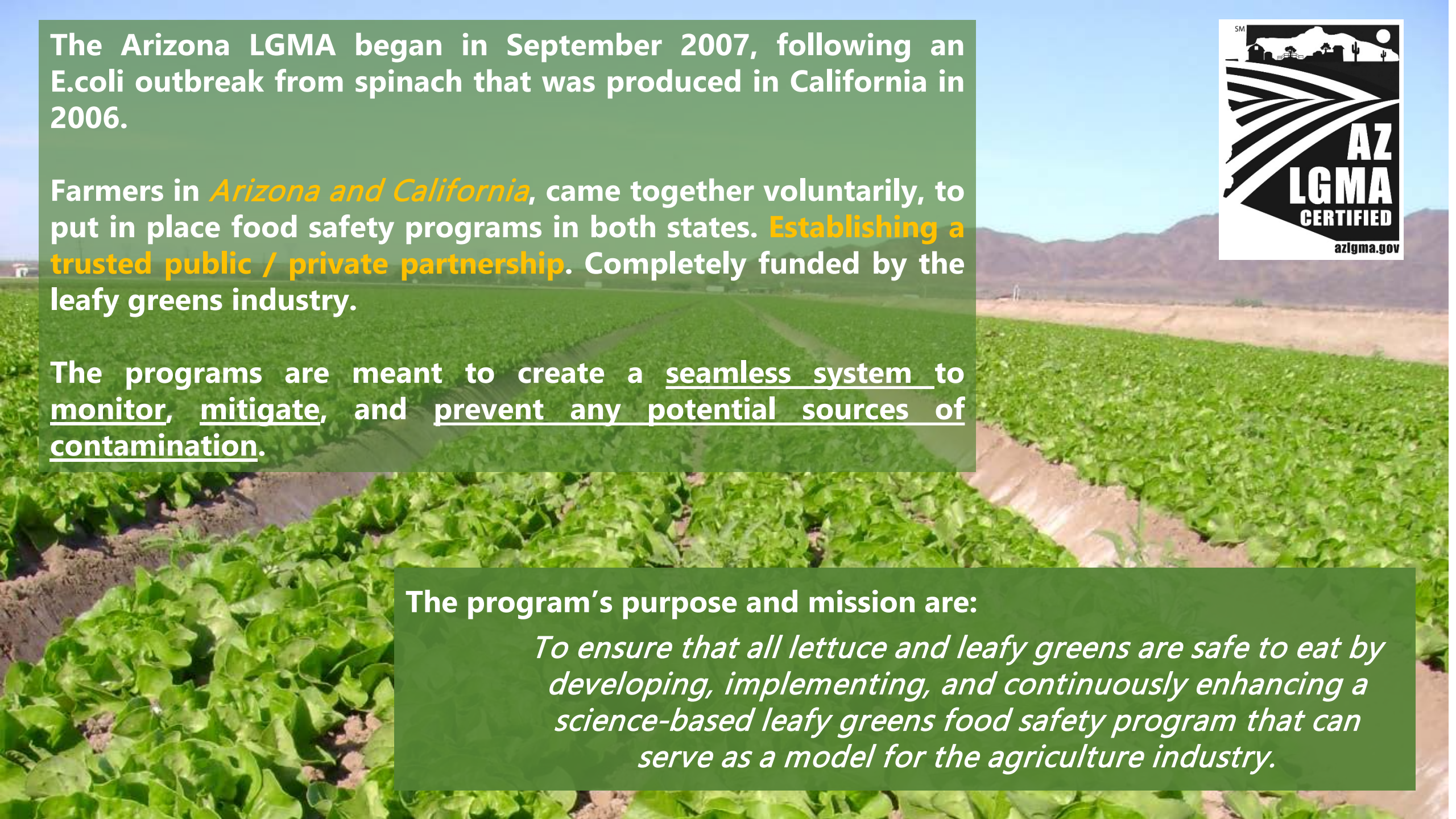
Arizona Leafy Greens Marketing Agreement



The Arizona LGMA began in September 2007, following an E.coli outbreak from spinach that was produced in California in 2006.

Farmers in *Arizona and California*, came together voluntarily, to put in place food safety programs in both states. **Establishing a trusted public / private partnership**. Completely funded by the leafy greens industry.

The programs are meant to create a <u>seamless system</u> to <u>monitor</u>, <u>mitigate</u>, and <u>prevent any potential sources of contamination</u>.

The program's purpose and mission are:

To ensure that all lettuce and leafy greens are safe to eat by developing, implementing, and continuously enhancing a science-based leafy greens food safety program that can serve as a model for the agriculture industry.

Arizona Leafy Green Products Shipper Marketing Agreement (Arizona LGMA)

- Industry solicited the Arizona Department of Agriculture's *Citrus, Fruit and Vegetable Standardization (CFV) Program*, for the State of Arizona's *first* Marketing Agreement.
- 100 % Voluntary Sign Up with Mandatory Compliance.
- 38 shippers members.

Arizona Leafy Greens Food Safety Committee

- 5 member Committee, made up of Signatory Shipper Representatives.
  - 3 members from Yuma County.
  - 2 from any other leafy greens producing area.

Technical Subcommittee

- 7 members, 3 alternates
- Best Practices (Metrics) Review
- Training & Industry Outreach

Communications Subcommittee

- 5 members, 1 alternate
- Public Relations and Public Outreach
- Crisis Management

Leadership & Staff

Food Safety Committee

Jerry Muldoon
Chairman

C.R. Waters

Vicki Scott

Tom Russell

Jennifer
Skidgel-Clarke

Technical Subcommittee

Vicki Scott (Chair)
Amanda Brooks
Hank Giclas
Bob Mills
Kevin Watson
Kami Weddle
Jeremy Vanderzyl
Nye Hardey (Alternate)
Valentin Sierra (Alternate)
Kristina Nunes (Alternate)

Communications Subcommittee

Will Rousseau (Chair)
Amanda Brooks
Tom Russell
Robert Shuler
Valentin Sierra
Joanne Kidd (Alternate)

Teressa Lopez
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916.847.2372

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602.759.8924
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Arizona Leafy Greens

- Last year, Arizona LGMA members shipped over ***70 million cartons or 1.7 billion pounds***, representing ***97% of leafy greens*** grown in Arizona.

- Approximately ***90% of the Leafy Greens consumed*** in the United States and Canada is grown in Arizona, during the months of ***November through March***.

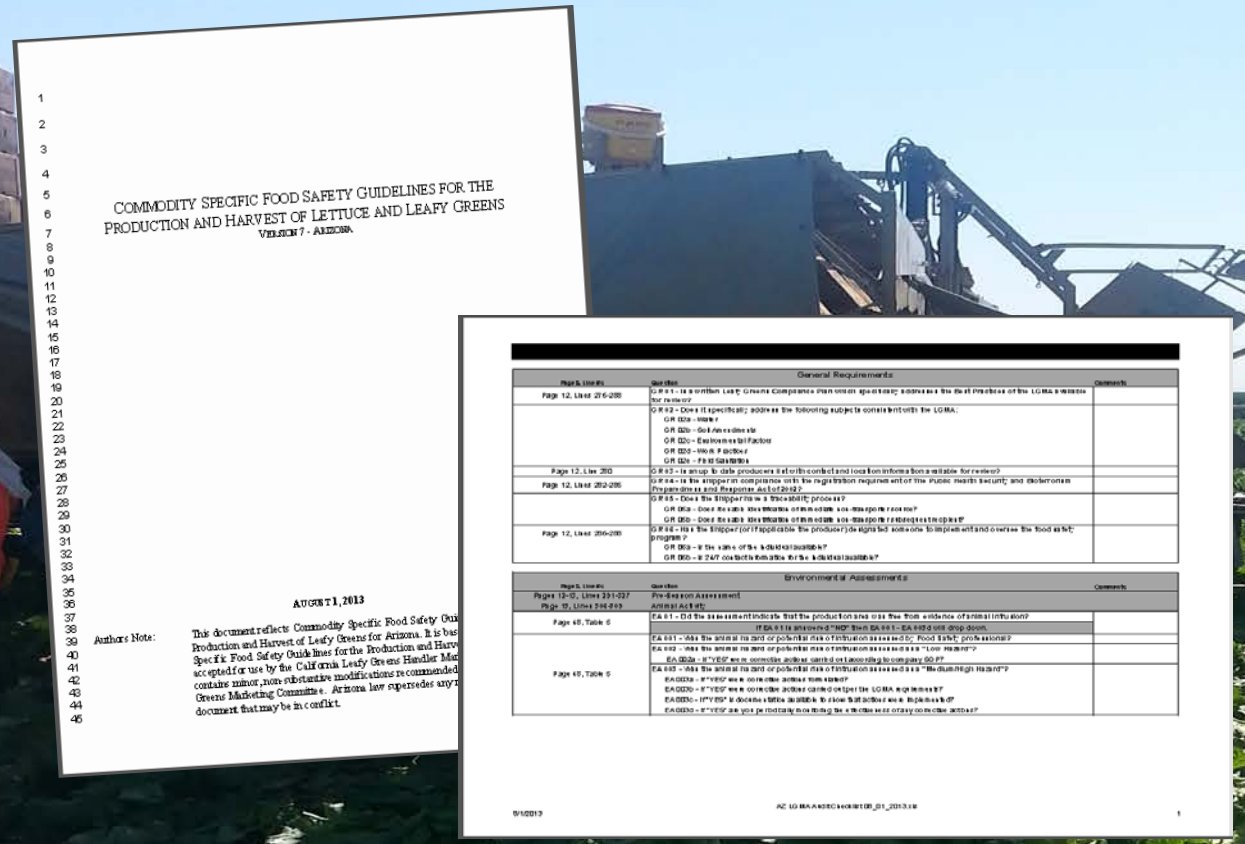
- Leafy Greens make up ***65 %of all Arizona-grown fresh produce commodities shipped.***

- ***Lettuce*** *(Romaine, Iceberg, Butter, and Leaf)* ***is Arizona's top crop***, representing **52%** of the state's total fresh produce shipped.

The 15 leafy greens covered are:

- Arugula
- Baby Leaf Lettuce
- Butter Lettuce
- Cabbage
- Chard
- Endive
- Escarole
- Green Leaf Lettuce
- Iceberg Lettuce
- Kale
- Red Leaf Lettuce
- Radicchio
- Romaine Lettuce
- Spinach
- Spring Mix

The ***Commodity Specific Food Safety Guidelines for the Production and Harvest of Lettuce and Leafy Greens*** are known as “Metrics”.



COMMODITY SPECIFIC FOOD SAFETY GUIDELINES FOR THE PRODUCTION AND HARVEST OF LETTUCE AND LEAFY GREENS

VERSION 7 - ARIZONA

AUGUST 1, 2013

Author's Note: This document reflects Commodity Specific Food Safety Gui… Production and Harvest of Leafy Greens for Arizona. It is bas… Specific Food Safety Guidelines for the Production and Harv… accepted for use by the California Leafy Greens Handler Mar… contains minor, non-substantive modifications recommended… Greens Marketing Committee. Arizona law supersedes any… document that may be in conflict.

General Requirements		
Page 12, Lines 276-288	GR #1 - Is a written Leafy Greens Company Plan which specifically addresses the Best Practices of the LGMA available for review?	
	GR #2 - Does it specifically address the following subjects consistent with the LGMA: GR #2a - Water GR #2b - Soil Amendments GR #2c - Environmental Factors GR #2d - Wildlife Factors GR #2e - Field Sanitation	
Page 12, Line 289	GR #3 - Is a map to date producers list with contact and location information available for review?	
Page 12, Lines 282-286	GR #4a - Is the shipper in compliance with the registration requirement of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002?	
	GR #5 - Does the Shipper have a traceback process? GR #5a - Does the pack identification of the edible non-transport receive? GR #5b - Does the pack identification of the edible non-transport receive request copies?	
Page 12, Lines 286-288	GR #6 - Has the Shipper (or if applicable the producer) designated someone to implement and oversee the food safety program? GR #6a - Is the name of the individual available? GR #6b - Is 24/7 contact information for the individual available?	

Environmental Assessments		
Pages 13-15, Lines 291-327 Page 15, Lines 396-399	Pre-Season Assessment Animal Activity	
Page 48, Table 6	EA #1 - Did the assessment indicate that the production area was free from evidence of animal intrusion?	
	If EA #1 is answered "NO" then EA #1 - EA #6 do not apply	
Page 48, Table 6	EA #1 - Was the animal intrusion or potential risk of intrusion assessed by Food Safety professional?	
	EA #2 - Was the animal intrusion or potential risk of intrusion assessed as a "Low Hazard"?	
	EA #2a - If "YES" was corrective action carried out according to company SOP?	
	EA #3 - Was the animal intrusion or potential risk of intrusion assessed as a "Medium/High Hazard"?	
	EA #3a - If "YES" was corrective action implemented?	
	EA #3b - If "YES" was corrective actions carried out per the LGMA requirements?	
	EA #3c - If "YES" is documentation available to show that actions were implemented?	
	EA #3d - If "YES" are you periodically monitoring the effectiveness of any corrective actions?	

5/1/2013 AZ LGMA Audit Checklist 08_01_2013.xls 1

The Metrics are the standards that Arizona and California LGMA shippers have applied and are audited against.

In 1998, the U.S. Food and Drug Administration (FDA) issued the

"Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables."

The Metrics were based on practices known as

Good Agriculture Practices (GAPs) or Best Practices.

Metrics Document

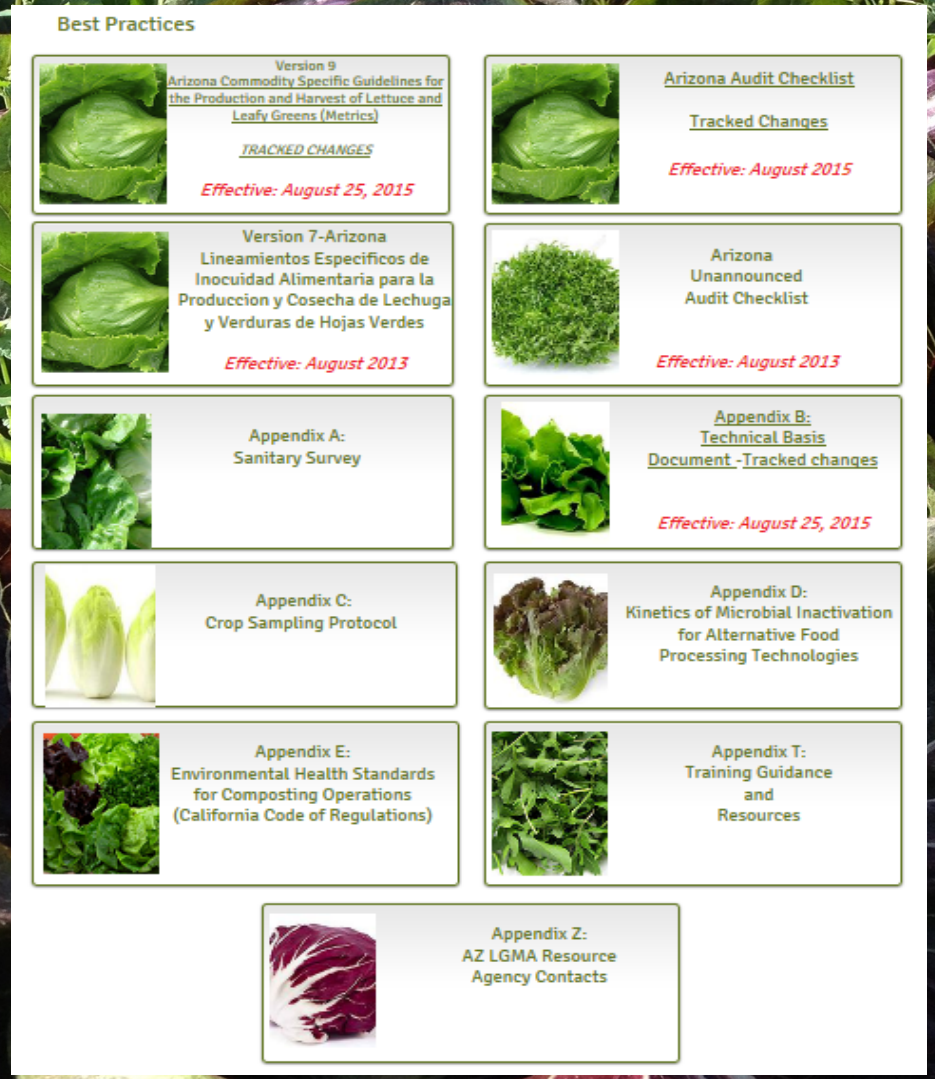
Metrics changes and updates

Industry experts and food safety professionals help to review and maintain the most *current science-based standards*

- Glossary
- Acronyms and Abbreviations.
- ***Appendix Documents*** to be used to provide guidance on specific Food Safety practices.

Best Practices include:

- Requires for each company to specify **Standard Operating Procedures** (SOPs).
- Requires **Documentation** to verify practices and procedures.
- **Decision Trees and Tables** help the companies comply and mitigate problems.



Food Safety Verification Audits

- ***General Requirements:*** Required to have a complete **food safety compliance plan**, an up-to-date **list of growers** and a written **trace-back program**.
- ***Environmental Assessments:*** **Pre-season**, **Pre-Harvest and Daily Harvest Assessments** are required to make sure conditions that can affect food safety ***(e.g. Animal intrusions, flooding, and proximity to animal feeding operations)*** are not present, or have been properly mitigated.
- ***Water Use*:** Extensive **testing and record-keeping** for **all sources of water** are required.
- **Soil Amendments:** Extensive **testing, certification and record-keeping** for all sources of **compost and fertilizers** used in the production of leafy greens are required.
- **Worker Practices and Field Observations:** Field audits verify compliance in the areas of worker practices and field sanitation. ***(e.g. Worker Hygiene, Sanitary Facilities, and the overall cleanliness of the worker and the field.)***

ASSESSING PRE-HARVEST WATER QUALITY

SAMPLING & WATER TEST METHODS

SOURCES

Municipal, well, reclaimed water, reservoir, canal or other surface water

SAMPLING FREQUENCY

- If there is no well exemption sample water source if > 60 days have passed since last tested
- When in use, sample each water system at least once every 35 days
- Collect samples at least 18 hours apart to calculate geometric mean

SAMPLING PROCEDURES & TEST METHODS

- Analyze samples for generic E. coli
- Collect sample as close to point of use as practical
- Use sampling method prescribed in Table 1
- Use FDA BAM method or other EPA approved or AOAC accredited method to analyze
- Calculate rolling geometric mean using the 5 most recent samples

INTENDED WATER USE

FOLIAR

Water contacts edible portion e.g. overhead sprinkler irrigation, pesticide/fungicide applications

ACCEPTABLE WATER TEST RESULTS

Single Sample ≤ 235 MPN / 100ml

AND

Geometric Mean is ≤ 126 MPN / 100 ml

UNACCEPTABLE WATER TEST RESULTS

Single Sample >235 MPN / 100 ml

OR

Geometric Mean is >126 MPN / 100 ml

NON-FOLIAR

Water does not contact the edible portion e.g. furrow or drip irrigation, dust abatement

ACCEPTABLE WATER TEST RESULTS

Single Sample ≤ 576 MPN / 100 ml

AND

Geometric Mean is ≤ 126 MPN / 100 ml

UNACCEPTABLE WATER TEST RESULTS

Single Sample > 576 MPN / 100 ml

OR

Geometric Mean is > 126 MPN / 100 ml

ARE TEST RESULTS ACCEPTABLE?

✓ YES

No further action necessary and water from this source may be used for any crop production.

NOTE:
If test results are higher than normal or indicate an upward trend, investigate to determine if remedial action should be taken

✗ NO

CONDUCT REMEDIAL ACTIONS

- Stop any crop production
- Examine the water source and distribution system
- Assess if there is a contamination source that can be resolved
- Conduct a sanitary survey (Appendix A) of water source and distribution system

RETEST

- Complete survey and/or taking remedial actions and retest at same sampling point
- Continue testing for the next five days at closest point of use
- If any test exceeds 235 MPN/100ml, repeat the sanitary survey and/or remedial actions
- Do not use system until the water meets acceptance criteria

CROP TESTING

- If water exceeding the acceptance criteria has been used for irrigation, sample and test crop for E. coli 0157:H7 and Salmonella (Appendix C) prior to harvest
- If any test results are positive, do NOT harvest the crop for human consumption

ASSESSING POST-HARVEST WATER QUALITY

SAMPLING & WATER TEST METHODS

SOURCES

Municipal, well, reclaimed water, reservoir, canal or other surface water

SAMPLING FREQUENCY

- If there is no well exemption sample water source if > 60 days have passed since last tested
- When in use, sample each water system at least once every 35 days
- Collect samples at least 18 hours apart to calculate geometric mean

SAMPLING PROCEDURES & TEST METHODS

- Analyze samples for generic E. coli
- Collect sample as close to point of use as practical
- Use sampling method prescribed in Table 1
- Use FDA BAM method or other EPA approved or AOAC accredited method to analyze
- Calculate rolling geometric mean using the 5 most recent samples

INTENDED WATER USE

DIRECT CONTACT

Direct water contact with product
e.g. re-hydration, core in-field

ACCEPTABLE WATER TEST RESULTS

Generic E. coli negative or below DL/100 ml

OR

ORP ≥ 650 mV and a pH range of 6.5-7.5

OR

Free chlorine > 1 ppm and pH range of 6.5-7.5

OR

Other approved treatments per product EPA label for human pathogen reduction in water

UNACCEPTABLE WATER TEST RESULTS

Positive result for generic E. coli

NOTE:
Water directly contacting harvested crop shall meet microbial standards in US EPA's National Drinking Water Regulations and/or contain sufficient concentration of an approved disinfectant to prevent cross contamination

ARE TEST RESULTS ACCEPTABLE?

✓ YES

No further action necessary and water from this source may be used for any crop production.

✗ NO

CONDUCT REMEDIAL ACTIONS

- Stop post-harvest use until water quality meets acceptance criteria
- Examine water source and distribution system
- Assess if there is a contamination source that can be resolved
- Conduct a sanitary survey (Appendix A) of water source and distribution system

RETEST

- After completing survey and/or taking remedial actions, retest at same sampling point.
- Continue testing for the next five days at closest point of use
- If any of the tests exceed 2 MPN/100ml, repeat the sanitary survey and/or remedial actions.
- Do not use system until the water meets the acceptance criteria

PRODUCT TESTING:

- Water exceeding the acceptance criteria is not appropriate microbial quality for post-harvest use
- Sample and test product for E. coli 0157:H7 and Salmonella (Appendix C)

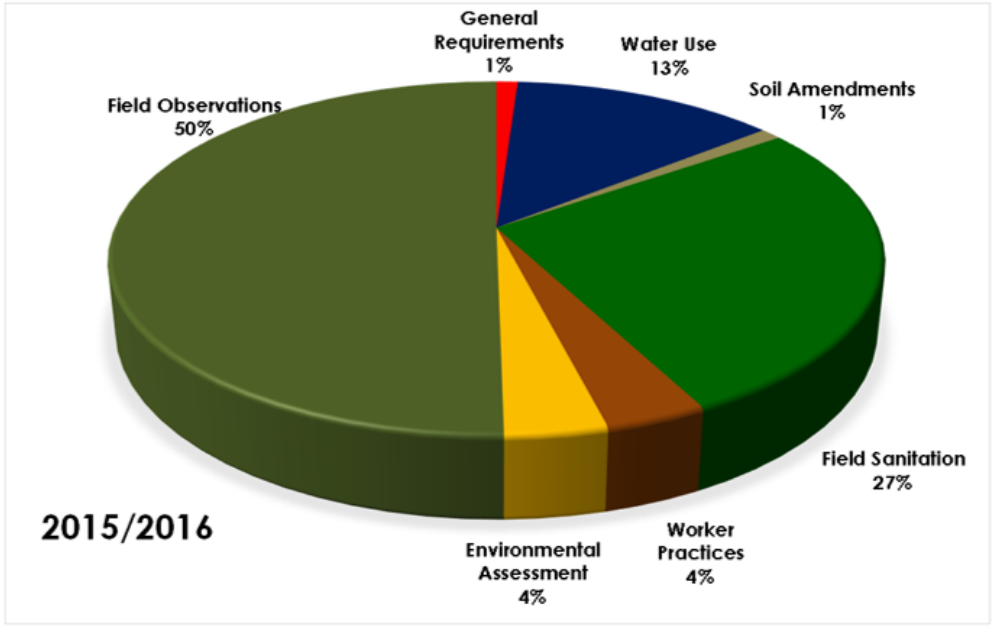
5 Year Comparison of Violations by Deviation Level

Violation Levels	2011/2012	2011/2013	2013/2014	2014/2015	2015/2016
Flagrant	0	0	0	0	0
Major Deviations	5	5	1	0	2
Minor Deviations	318	91	115	111	94
Minor Infractions	158	112	104	100	95
Total	*481*	*208*	*220*	*211*	*191*

- A *flagrant violation* occurs **when the shipper** *knows or should have known the product was grown, packed, shipped, processed, or handled in violation of the best practices* and the violation significantly increased the risk of delivering unsafe product into commerce. A single flagrant violation leads to a loss of the privilege to use the LGMA service mark.
- A *major deviation* is a violation of the best practices that *may inhibit the maintenance of food safety, but that does not necessarily result in an unsafe product.*
- A *minor deviation* is a violation of the best practices that the signatory *can correct within five business days and that does not necessarily increase the risk of a food borne illness.*
- A *minor infraction* is a violation of the best practices that is *corrected before the inspector leaves the premises and that does not necessarily increase the risk of a food borne illness.*

5 Year Comparison of Violations by Metrics Category

Metrics Categories	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016
General Requirements	23	8	6	1	2
Environmental Assessment	37	5	6	3	7
Water Use	42	36	25	21	25
Soil Amendments	16	4	2	1	2
Worker Practices	71	12	15	19	7
Field Sanitation	205	20	54	47	52
Field Observations	87	123	112	119	96
Total	*481*	*208*	*220*	*211*	*191*



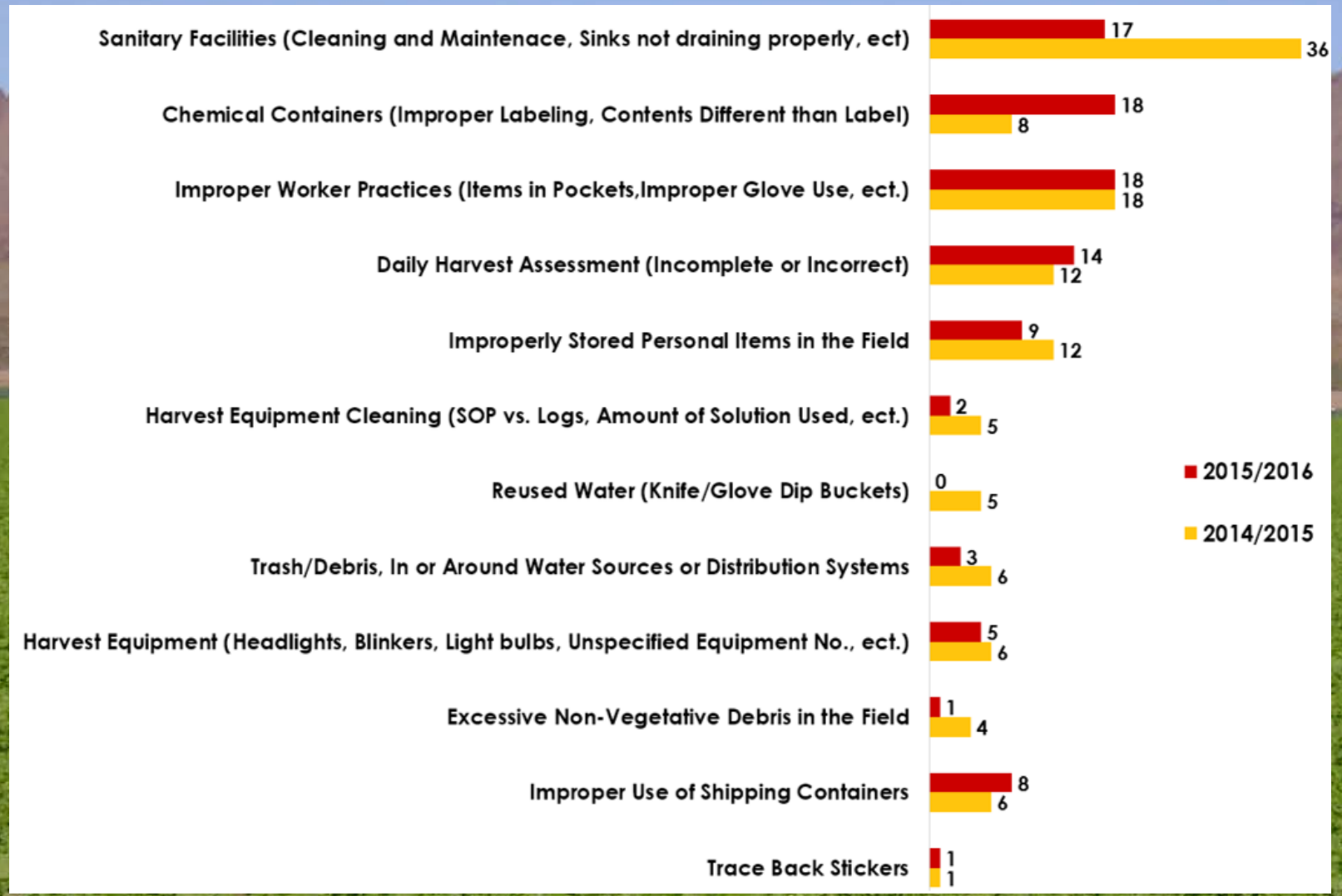
Water Use Violations

General Requirements								Pre-Harvest Foliar and Non-Foliar Water Applications				Post Harvest Direct Produce Contact or Food Contact Surfaces															
WU 01: Is a ranch map (or other documentation) indication the sources of water and distribution systems available for review?				WU 01a: Does the map (or other documentation) identify permanent above ground fixtures such that they can be located in the field?				WU 02e: Was a source water test conducted for ea. Source of water within 60 Days of first use on post germinated fields?- Location where the sample was taken is recorded?				WU 04b: If the water is reused, is sufficient disinfection added and monitored to prevent possible cross-contamination? (Chlorine-more than 1ppm free chlorine and PH 6.5-7.5 or ORP-more than 650mV or other approved treatment per product EPA label for human pathogen reduction in water)				WU 04c - Was a source water test conducted for each source of water within 60 days of first use?				WU 05: Do records show that all water used in equipment cleaning processes (Tables, belts, bins, etc.) is tested for generic E. coli or that sufficient disinfectant was used?				WU 05c: The records indicate that the operation monitors disinfectant levels during re-hydration, product coring in the field and product cooling.				WU 05d: The records indicate the testing procedure/equipment that was used for monitoring the disinfectant levels (indicate the procedure/equipment type)			
FL	MjD	MnD	MiF	FL	MjD	MnD	MiF	FL	MjD	MnD	MiF	FL	MjD	MnD	MiF	FL	MjD	MnD	MiF	FL	MjD	MnD	MiF	FL	MjD	MnD	MiF	FL	MjD	MnD	MiF
0	0	2	0	0	0	3	2	0	0	3	0	0	0	1	5	0	0	0	1	0	0	5	0	0	0	1	1	0	0	1	0
2				5				3				6				1				5				2				1			
25																															

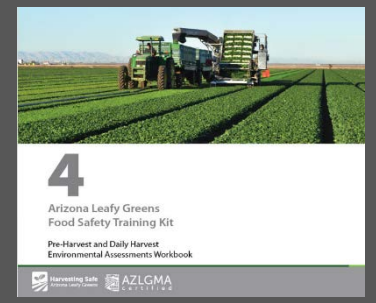
5 Year Comparison of Field Observation Violations

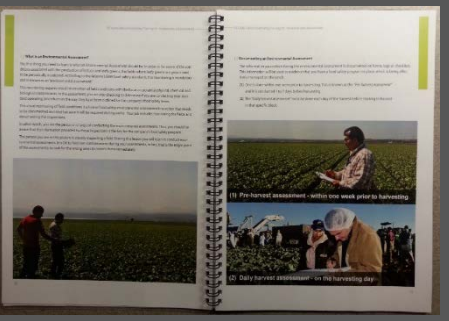
Field Observation Categories	*2011/2012*	*2012/2013*	*2013/2014*	*2014/2015*	*2015/2016*
Water Use	6	10	10	13	5
Environmental Factors	0	7	4	7	12
Worker Practices	51	55	41	56	44
Field Sanitation	30	51	57	43	35
Total	*87*	*123*	*112*	*119*	*96*

2 Year Comparison of Field Observation Violations



Arizona Leafy Greens Food Safety Training Kit





Orientation –Food Safety Orientation

Module 1 – Foodborne Outbreaks and Contaminates

Module 2 – Personal Hygiene & Hand washing

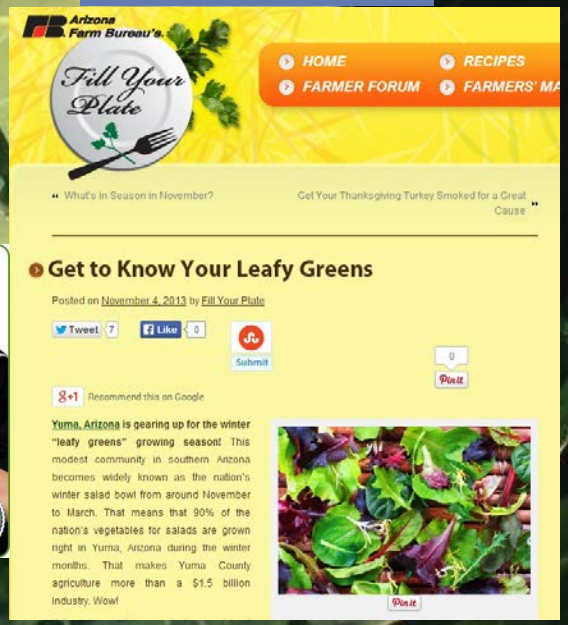
Module 3 – Cross Contamination

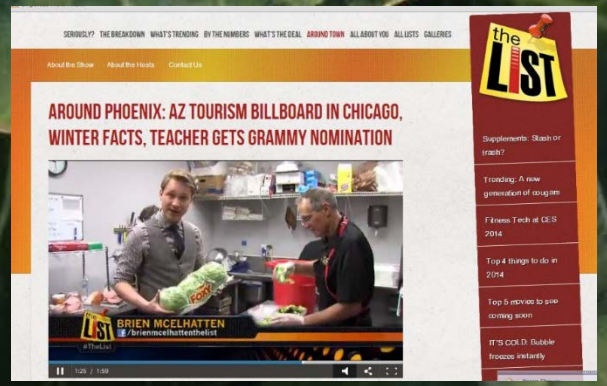
Module 4 – Environmental Risk Assessments

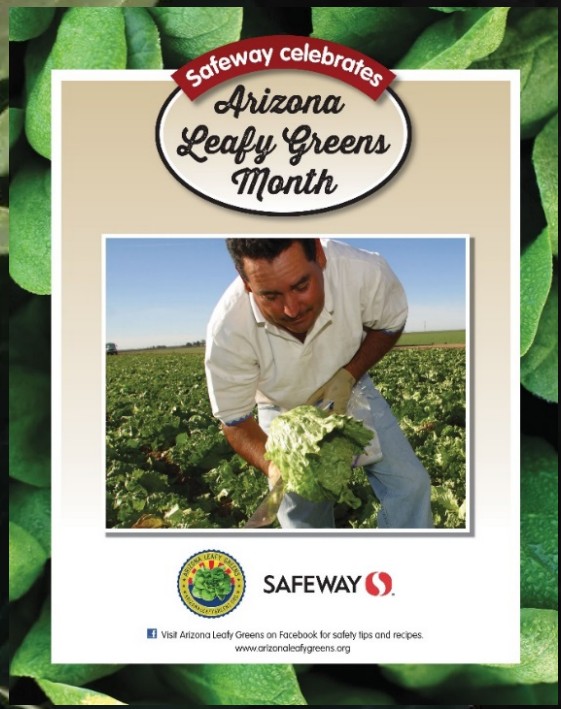
DVD's Now Available!

Public Outreach

- Arizona Leafy Greens Month
- Social media
- Ongoing media outreach
- Tradeshows and Expositions
- Crisis Management

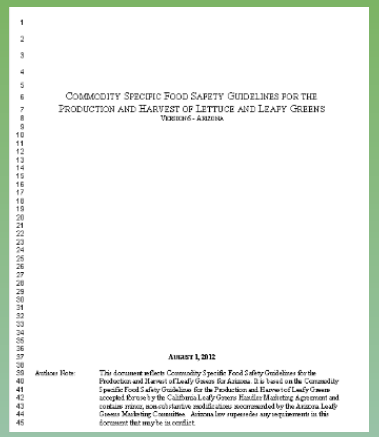






What's Next?

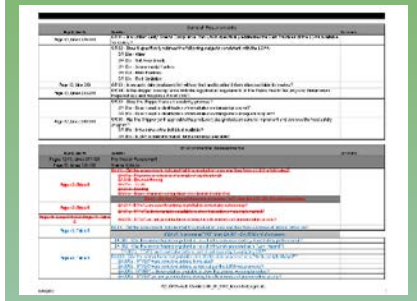
- Metric 101 Training
  - Webinars
  - Online Training



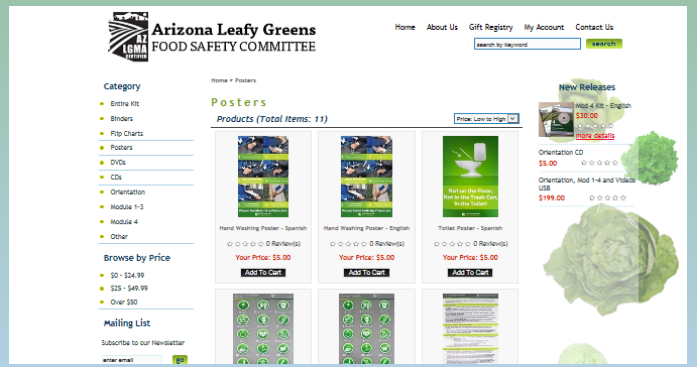
COMMODITY SPECIFIC FOOD SAFETY GUIDELINES FOR THE PRODUCTION AND HARVEST OF LETTUCE AND LEAFY GREENS
VERSION 6 - ARIZONA

AUGUST 1, 2012

Archive Note: This document reflects Commodity Specific Food Safety Guidelines for the Production and Harvest of Leafy Greens for Arizona. It is based on the Commodity Specific Food Safety Guidelines for the Production and Harvest of Leafy Greens accepted for use by the California Leafy Greens Handler Marketing Agreement and contains minor, non-substantive modifications recommended by the Arizona Leafy Greens Marketing Committee. Arizona law supersedes any requirements in this document that may be in conflict.



- Training Materials Available On-line
  - Purchase and Download



- Food Safety Modernization Act: Produce Rule

FDA FOOD SAFETY MODERNIZATION ACT

Arizona Department of Agriculture

Implementation of the Produce Safety Rule

FDA FOOD SAFETY
MODERNIZATION ACT

FDA FOOD SAFETY MODERNIZATION ACT

In January 2011, President Obama signed into law the FDA **Food Safety Modernization Act (FSMA)**, the most comprehensive reform of our food safety laws in more than 70 years.

It aims to ensure the U.S. food supply is safe by shifting the focus from responding to contamination to preventing it.

First time ever mandatory government on-farm inspections conducted.

The seven major FSMA regulations are the:

- **Produce Safety Rule-** *Standards for the Growing, Harvesting, Packing, & Holding of Produce for Human Consumption*
- **Preventive Controls for Human Foods**
- **Preventive Controls for Animals**
- **Foreign Supplier Verification Programs**
- **Third Party Accreditation**
- **Mitigation of Intentional Adulteration**
- **Sanitary Transportation**

Food Safety Audits Available

Prior to FSMA, *ALL* Produce Food Safety Audits were voluntary.

Audit requirements are imposed by the BUYERS (Retailers and Wholesalers), and require Grower's, Harvesters and Shippers, to comply with specific Food Safety Audit Programs.

Private audits vs audits USDA Government

Global Food Safety Initiative (GFSI) Audits

Primus GFS

Global GAP

BRC

SQF

ISO 22000 food safety management system

USDA Audits

GAP/GHP

Harmonized

Tomato Protocol

AZ/CA LGMA


Where does your farm fit in with FSMA?
FDA FOOD SAFETY MODERNIZATION ACT
Here is how FDA defines farm size:
LARGE FARM
Sells more than $500,000 in produce each year
SMALL FARM
Sells $250,001 – $500,000 in produce each year
VERY SMALL FARM
Sells $25,000 – $250,000 in produce each year
*Farms who sell $25,000 or less in produce each year are exempt from the law

FDA FOOD SAFETY MODERNIZATION ACT

PRODUCE RULE

PHASE 1 Rulemaking

1 JANUARY 2011
Produce Rule signed into law by President Obama as a part of the Food Safety Modernization Act

2 JANUARY 2013
Proposed produce rule issued by FDA and open for public comments.

3 SEPTEMBER 2014
FDA released proposed revisions to the Produce Rule – these include revisions to water quality testing provisions to account for natural variations in water sources and an adjusted approach to manure and compost used in crop production pending further research on this issue.

NOVEMBER 2015
Final Produce Rule issued by FDA.

PHASE 2 Compliance

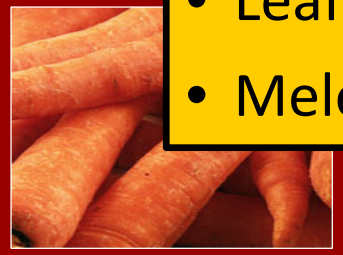
1 DECEMBER 2017
Large Farms will be required to be in compliance*

2 DECEMBER 2018
Small Farms will be required to be in compliance*

3 DECEMBER 2019
Very small farms will be required to be in compliance*

DECEMBER 2022
The Produce Rule will be fully implemented for all farms who fall under it

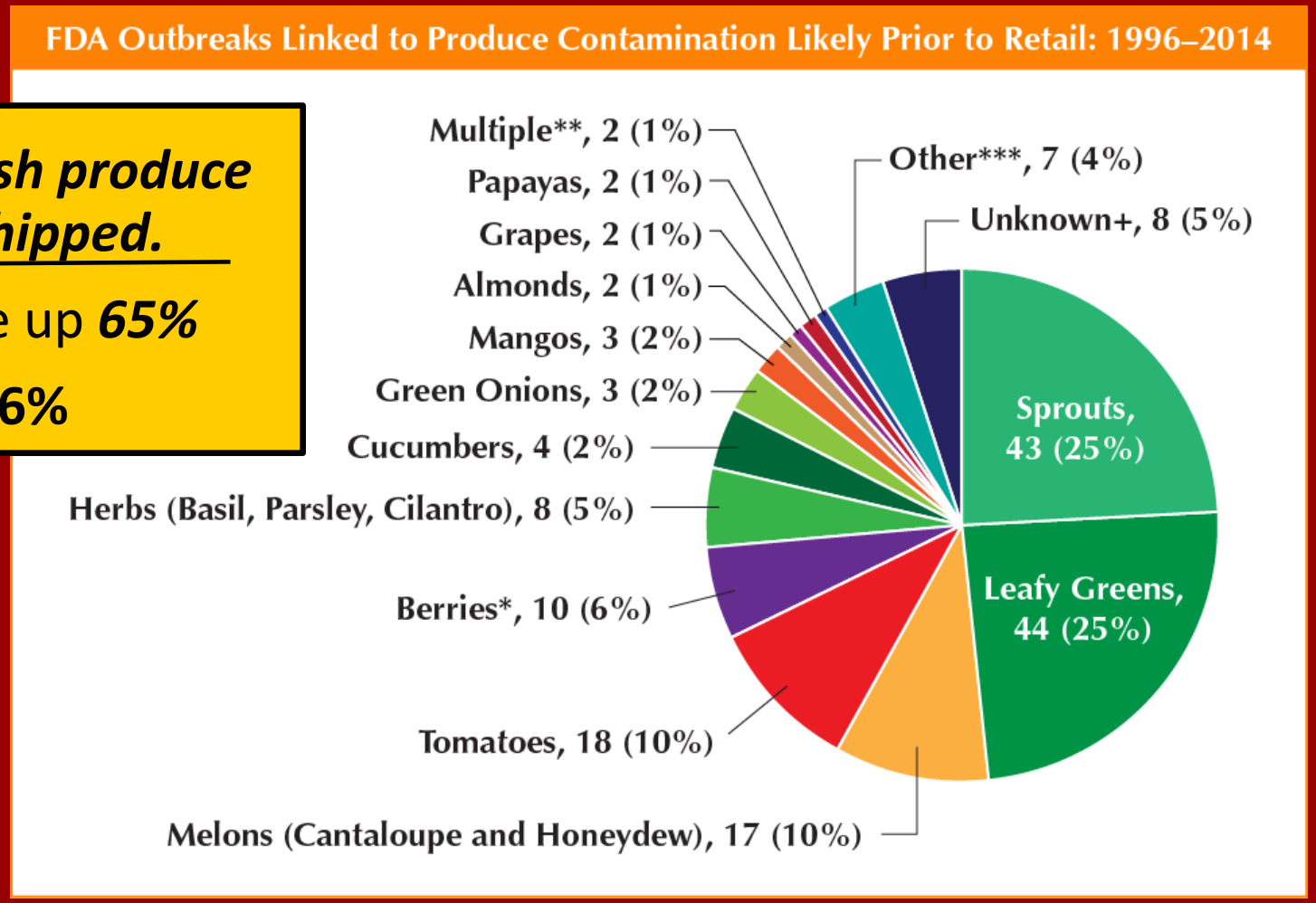
*All size farms will be given an additional two years to meet water requirements



Outbreaks Associated with Produce

Arizona-grown fresh produce commodities shipped.

- Leafy Greens make up ***65%***
- Melons make up **16%**



NASDA Produce Safety Rule Implementation

National Association of State Departments of Agriculture (NASDA) held a PSR Implementation conference on *March 22-23, 2016*.

Attendees:

- Three ADA Staff, Teressa Lopez, Alex Wladyszewski and Stewart Jacobson.
- FDA Staff-Including the Commissioner, Mike Taylor and his successor Dr. Steven Ostroff.
- Representatives from all 50 State Departments of Agriculture.
- State Health Department Employees, no ADHS employees.
- One USDA representative, Leanne Skelton.

- Discussed the PSR Implementation Framework for the Departments of Agriculture.
- Funding Opportunity Announcement (FOA # PAR-16-137) for Training/Outreach and Compliance/Regulatory Enforcement.
  - Letter of Intent due *April 15, 2016*. There were 48 states that submitted this Letter of Intent.
  - ADA held two public meetings, one in Yuma on April 5, 2016 and one in Phoenix on April 12, 2016
  - Application due by June 3, 2016, ADA submitted on May 31, 2016.

Competition A: Outreach/Education

1) **Identify covered industry- growers and contract packers to establish a Farm Inventory**
2) Encourage voluntary compliance, through training of covered and uncovered farms
3) Develop partnerships *(e.g. Extension Service and Trade Associations)*
4) Educate covered and uncovered growers and contract packers
5) Providing the educational messages to align with the PSR
6) Conduct On-Farm Pre-Assessments *(mock inspections)*

Competition B: Compliance /Enforcement

1) Encourage compliance using regulatory inspections
2) Compliance components
   - Initial inspections
   - Follow-up or Re-inspections of Corrective Actions
   - Enhanced regulatory inspections as needed
3) Utilize tools available to ensure compliance with the PSR and the protection of public health
4) **EDUCATE BEFORE YOU REGULATE!!**

Arizona Leafy Greens Food Safety Committee

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