

**FRESH PRODUCE
SAFETY CENTRE**
AUSTRALIA & NEW ZEALAND

FOUNDING PARTNERS



THE UNIVERSITY OF
SYDNEY



**FRESH
PRODUCE
SAFETY
CONFERENCE**
11 AUGUST 2022

PROMOTING SKILLS,
SCIENCE, SYSTEMS
AND STANDARDS



Welcome

Hello and welcome to all of our participants.

We would like to acknowledge the Gadigal of the Eora Nation, the traditional custodians of this land and pay our respects to the Elders both past and present.



It's Everyone's Job- Embedding Food Safety Across the Business at Taylor Farms

Presented by
Drew McDonald
Taylor Farms
Fresh Produce Safety
Conference Sydney 2022



MISSION STATEMENT

To be North America's favorite maker of salads and healthy fresh foods.



ABOUT US

In 1995, Taylor Fresh Foods took the simple, wholesome idea of growing lettuce and gave it a lofty mission: to become North America's favorite maker of salads and fresh foods. 26 years later, the Taylor Farms family has stayed true to its roots. Every year, Taylor farmers plant 3 billion seeds, which blossom into hearty greens, savored in salads by 244 million Americans and Canadians every week. The Taylor Farms mission continues today: to cultivate extraordinary produce that will enrich our tables and nourish our communities for generations to come.



MAKERS OF
1 IN 3 SALADS CONSUMED
IN THE U.S. & CANADA

244 MILLION

SERVINGS OF FRESH FOOD
PRODUCED EACH WEEK

22 PRODUCTION
LOCATIONS

3 MARKET SEGMENTS
RETAIL, DELI & FOODSERVICE

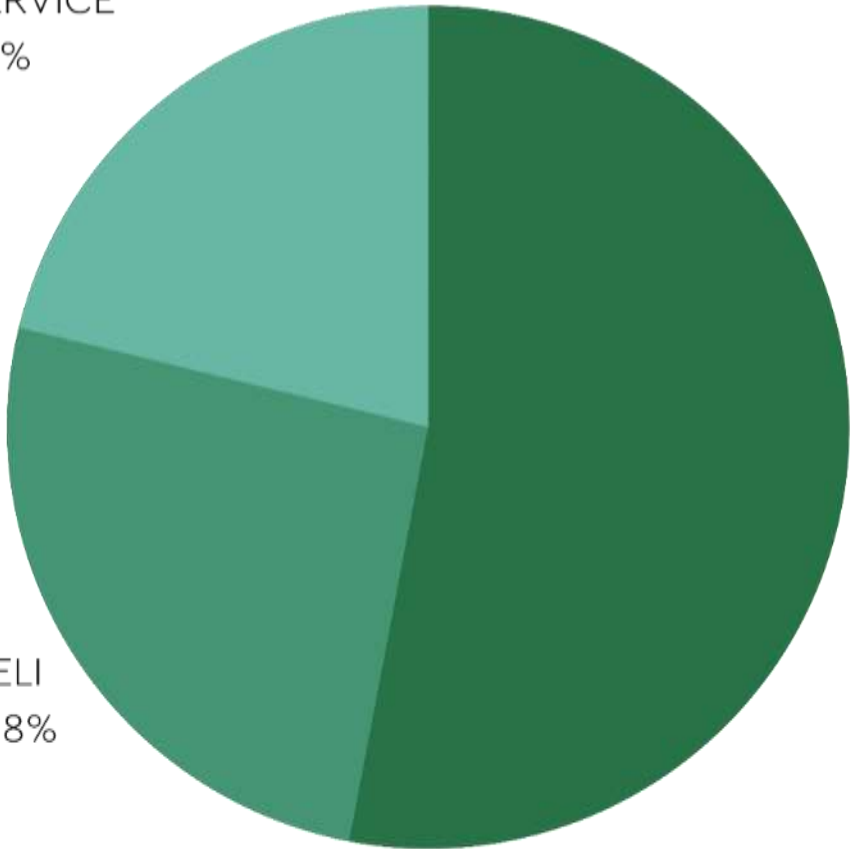
280+ INDEPENDENT & FAMILY
OWNED GROWING PARTNERS

14 GROWING
REGIONS

20K+ TEAM
MEMBERS

Our Business Segments

FOODSERVICE
21.2%



RETAIL
53%



RETAIL



DELI/FRESH PREPARED



FOODSERVICE



Production Locations



VALUES & ATTRIBUTES

- Passion
- Honesty/Integrity
- Trusting/Trustworthy
- Respect
- Teamwork

EMPLOYEE HANDBOOK

- Take care of the customer
- Take care of each other
- Do the right thing.



Embedding Food Safety Across The Company



Why Food Safety?

Right Thing To Do



Why Food Safety?

Stay out of Jail

“aiding and abetting in the introduction of adulterated food into interstate commerce.”

The laws regarding this case have existed for half a century. If the food is contaminated unknowingly, the person responsible can be charged with a misdemeanor. In the Jensen case and for each charge, that includes a year in jail and \$250,000 fine. For the Jensens, they are looking at up to six years in jail each and \$1.5 million in fines each. I think if their product had not been linked with 147 people sick and 33 people dead, this would not be happening. I think it was hard for the U.S. Attorneys office to ignore the fact that 33 people died.

In the future, I don't think that prosecuting attorneys are going to start willy-nilly charging people with run-of-the mill foodborne illness outbreaks. If I was the CEO [of a food company/farm], though, I would put in processes to ensure I am on the cutting edge of food safety technology.



Why Food Safety?

Witness Stand Test

Peanut Exec Gets 28 Years In Prison For Deadly Salmonella Outbreak

September 21, 2015 - 9:11 PM ET
Heard on Morning Edition

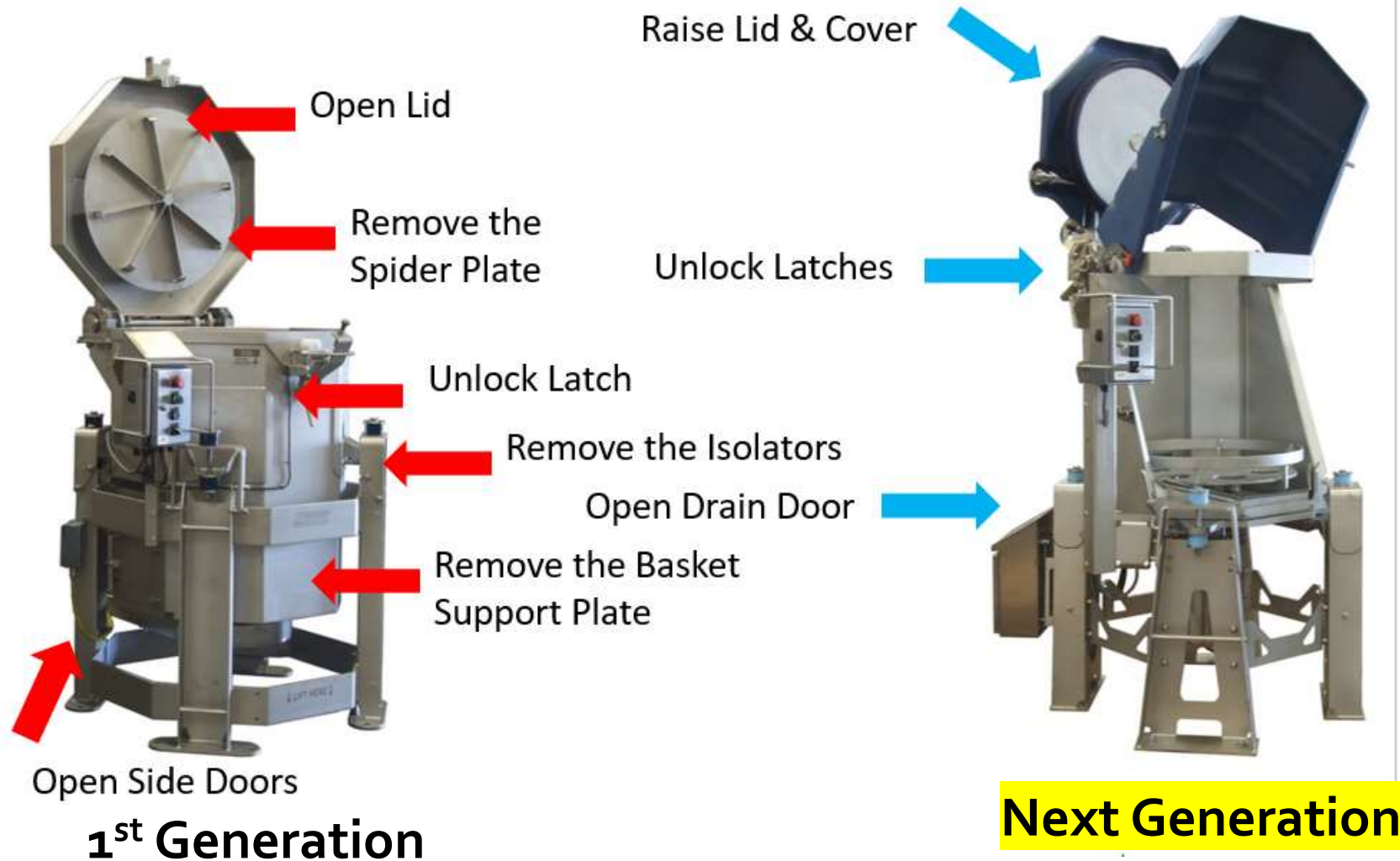
DAN CHARLES

These were almost unprecedented charges in the food industry, and Marler says that executives in other companies are paying close attention. "The arrest of Stewart Parnell, his conviction on these felony counts and his sentence have put a very big chill in the boardrooms of corporate America," he says.



Why Food Safety?

Cheaper Than a Problem



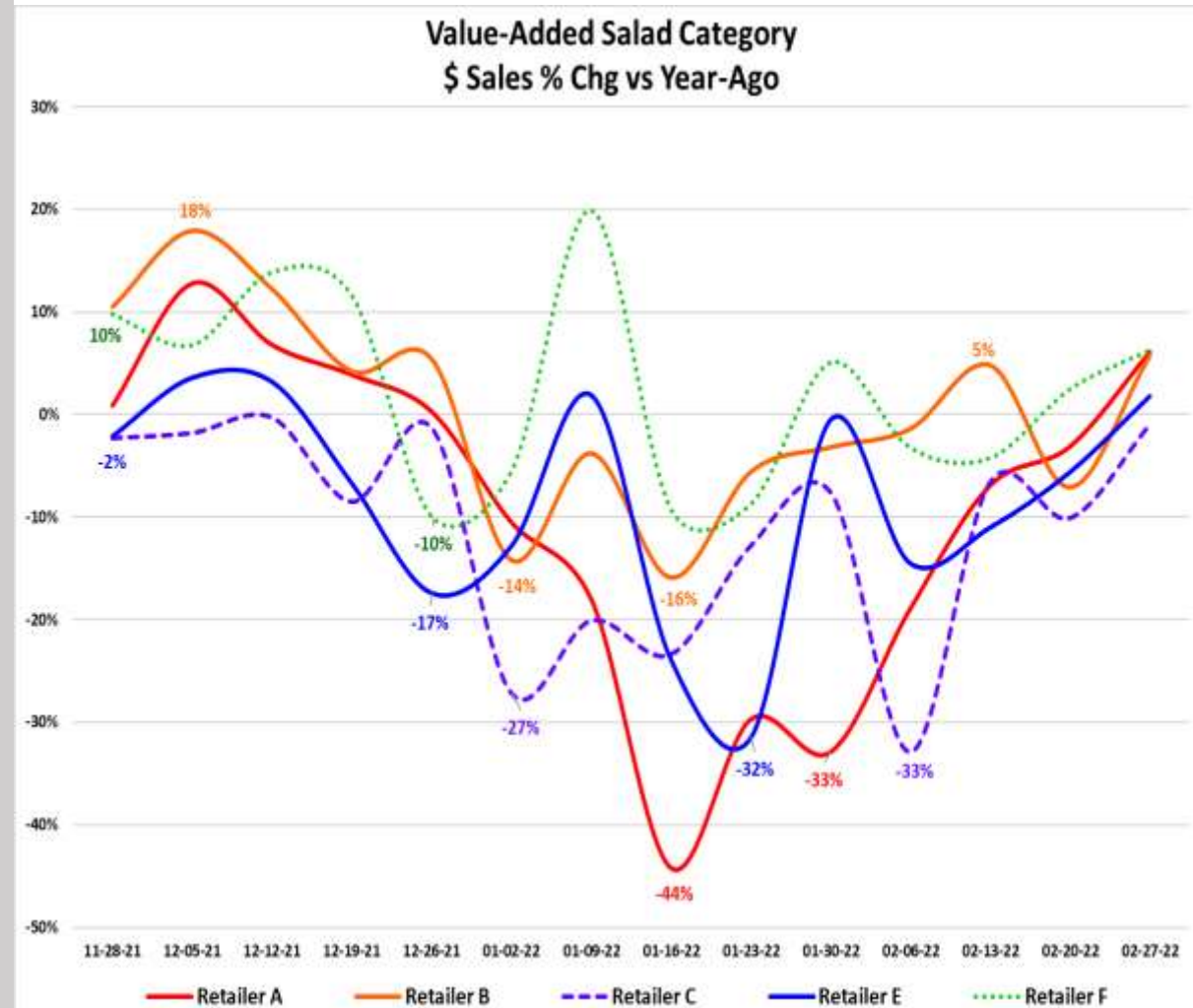
Why Food Safety?

The Greater Good



Specific to the Listeria impact in Dec/Jan 2022, it is a quite pronounced impact for a few retailers.

- Pre listeria event, retailers were flat to growing total VA Salad category sales **+10%** to **+15%**.
- During the 7 week impact window, retailers experienced VA Salad category declines of **-5%** to **-20%**.
- The 5 retailers reflected in the graph probably lost **-\$10M** to **-\$15M** in sales in 7 weeks (combined **-14%** vs YAG).



Most Operations Are Really Good at Collecting Data

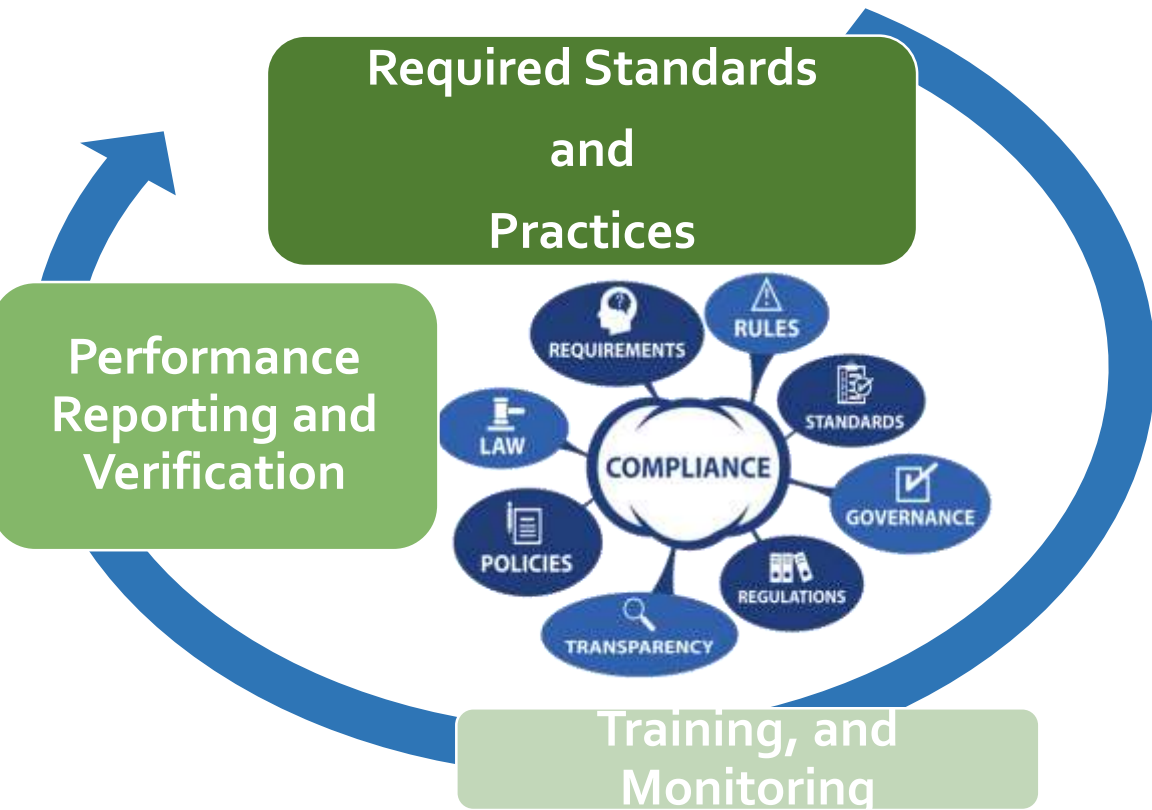
Data, data everywhere
but not a drop
to drink



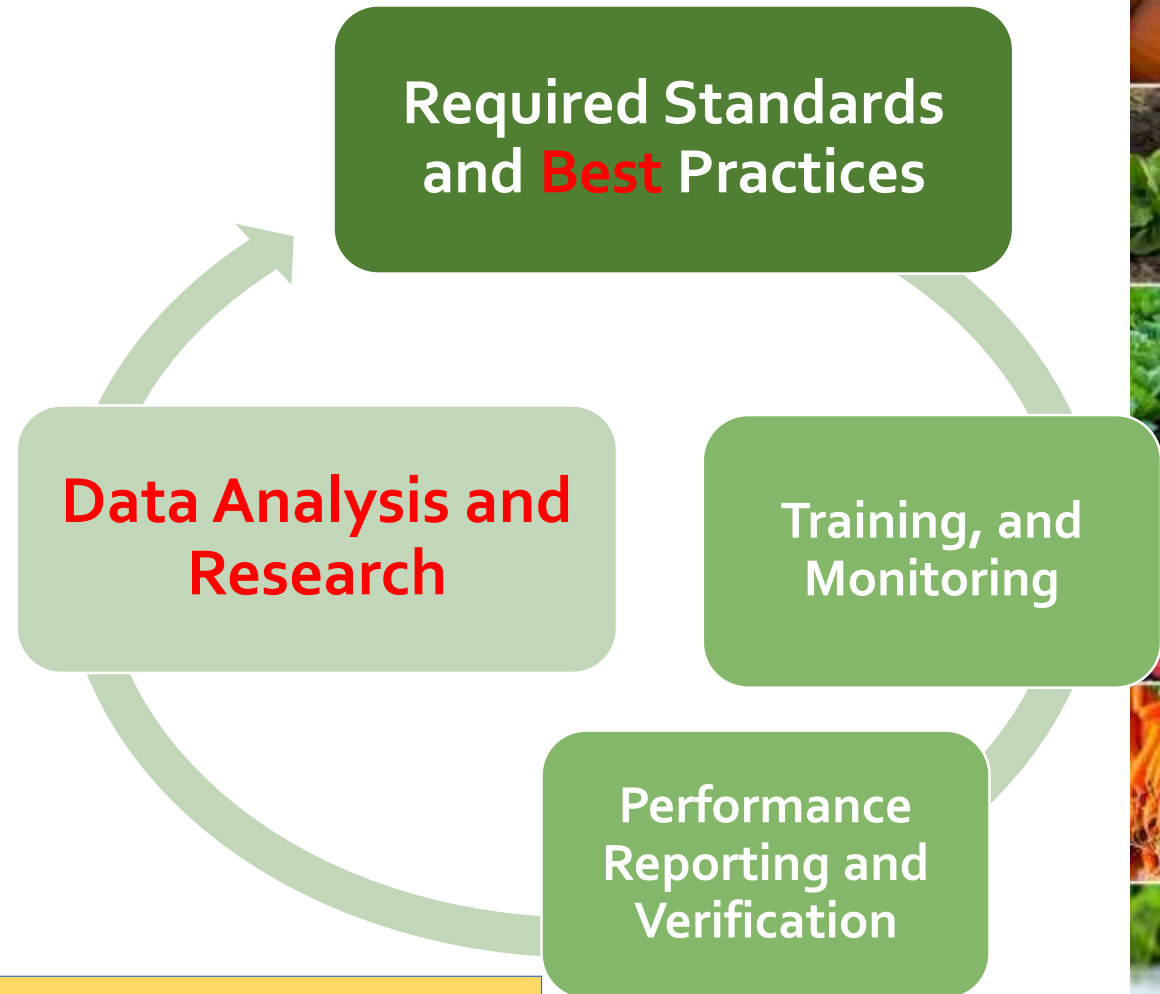
photo credit: wateronline.com



A Compliance-Based Approach



A Data-Driven Approach: Test & Learn



→ Are your programs the same today as they were 2, 3, 5 years ago?

The Data Are A Mess: *But Don't Let This Stop You*

- Industry is really good at collecting data
 - Paper, Excel, Homegrown databases, Enterprise Solutions
- The opportunities are found best in the Output/Reporting Process
 - Start with Excel

Raw Product Temperature (top)	Raw Product Temperature (middle)	Raw Product Temperature (bottom)	Raw Product Age in Days (1)	Raw from Harv	Raw from Harv
36	36	36H-11days	11	11	154
38	38	38H-3days	3	3	42
38	38	38H-7days	7	7	98
35	35	35H-3	3	3	42
38	38	38h5	5	5	70
37	37	37H-5days	5	5	70
37	37	37h7	7	7	98
36	36	36H-7	7	7	98
37	37	37 Harvest 4 days	4	9	126
37	37	37 Harvest 8 days	8	9	126
36	36	36H-5days	5	5	70
36	36	36H-5days	5	5	70
38	38	38H-7days	7	7	98
40	40	40H-8days	8	8	112

Row Labels	Average of Finished Product Average Temperature	StdDev of Finished Product Average Temperature
May	36.6931067	4.333161627
203039-01	36	#DIV/o!
Pep. Red & Green Blend & OnY Fajita Cut 3/8 10/2# MM	36	#DIV/o!
203254-02	38	#DIV/o!
Pot B-Red QTR w/Skin TF 4/5#	38	#DIV/o!
203563-02	37	#DIV/o!
Radish Slice 1/8 TF 4/5#	37	#DIV/o!
203564-01	37	0
11 days 4 days		
Receiving Receiving		
11 days 4 days		
H-7days R-7days		
H-16days R-7days		
R-24days R-9days		
H-10days R-6days		

Common Data Element Issues

Outliers: outliers are the numbers in a column that are out of range. In fact, an outlier lies outside of most of the other values in a dataset

Duplicates: A dataset can contain repetitive rows or records

Missing values: We might lose data as the result of human error or missing information

Bad character or NULL values: Some values may contain bad characters like ? or NULL values. Sometimes null data may be specified with different values like N/A or NA

Misspellings- open text fields are ripe for problems and inconsistencies



A Data-Driven Approach: Incremental Improvement

- Perfect is the Enemy of Good: Start with whatever data you have
- The Tool is Just a Tool: Beware of Solutions in Search of a problem
- Define the Problem: Let the Data be your Guide
- Data Context: Be Curious, boots on the Ground plays a critical role

Data-driven process improvement is the heartbeat of a company that has embedded Food Safety . As such PUBLISH it, use competitive nature of teams to drive change!



What Does A Data-Driven Approach Look Like?

Field Surveillance

Year	Tests			Positives		
	Coastal	Desert	Mexico	Coastal	Desert	Mexico
2006	0	21		0	0	
2007	3517	4852		1	0	
2008	11992	5090		4	0	
2009	9175	4788		2	0	
2010	17452	5209		8	1	
2011	19431	7185		3	2	
2012	18390	11765	2926	1	6	0
2013	19310	13656	3574	8	2	1
2014	26988	9919	3285	4	5	0
2015	17530	11572	3614	4	2	0
2016	20049	11317	4263	2	3	1
2017	12411	9287	4244	1	0	0
2018	20316	14416	4324	13	0	0
2019	25574	16333	4254	2	1	0
Total	222,125	125,410	30,484	53	22	2



Tools To Use:

Process Monitoring

EXAMPLE

	Operation Hrs	Control Hrs.	Mode3,4	Manual	Relay Off	Days	Lines	Control Percent	Sensor Percent	pH	Cl2	Peer Rank	NR *
Mexico	791.76	791.74	767.31	0.60	16.79	7	9	99.998%	99.85%			1	0
Retail San Juan Bautista	988.20	988.13	962.95	0.09	5.31	6	10	99.992%	99.75%			2	0
Pacific - MacArthur	426.45	426.43	310.56	0.63	26.62	6	9	99.995%	99.87%			3	0
Colorado	169.17	169.16	156.70	0.35	2.80	6	5	99.992%	99.51%			4	0
Retail Baja	972.02	971.59	971.54	6.14	10.10	6	11	99.956%	99.81%			5	0
Tennessee	1088.24	1086.77	1037.84	11.35	19.18	7	11	99.865%	99.23%			6	0
Retail Gonzales	1002.05	1000.36	975.55	0.26	13.73	7	10	99.831%	99.55%			7	0
Arizona Yuma 1	832.75	830.48	812.22	4.25	35.02	6	9	99.728%	99.36%			8	0
Texas	556.84	555.45	550.46	2.42	41.33	6	9	99.751%	98.95%			9	0
Retail Salinas	1108.31	1104.36	1054.02	0.19	17.94	6	11	99.643%	99.21%			10	0
Tennessee North	751.61	748.79	709.54	0.98	5.83	7	11	99.625%	99.20%			11	0
Maryland	652.79	649.04	648.27	2.00	16.42	6	7	99.424%	99.63%			12	0
Florida	557.22	550.89	549.99	0.73	18.89	6	7	98.865%	98.33%			13	0
Deli Dallas	61.34	60.66	60.16	1.22	1.60	6	1	98.885%	97.81%			14	0
Arizona Yuma 2	1255.94	1241.23	1188.96	10.03	26.34	6	14	98.829%	98.84%			15	0
Food Svc. Schilling	325.76	321.38	320.20	2.44	7.46	6	5	98.655%	97.22%			16	0
New Jersey	159.36	156.44	156.04	2.39	7.89	6	4	98.167%	96.91%			17	0
Guadalupe	541.40	530.19	528.70	4.08	22.26	6	9	97.929%	96.29%			18	0



Tools To Use:

Facility Surveillance

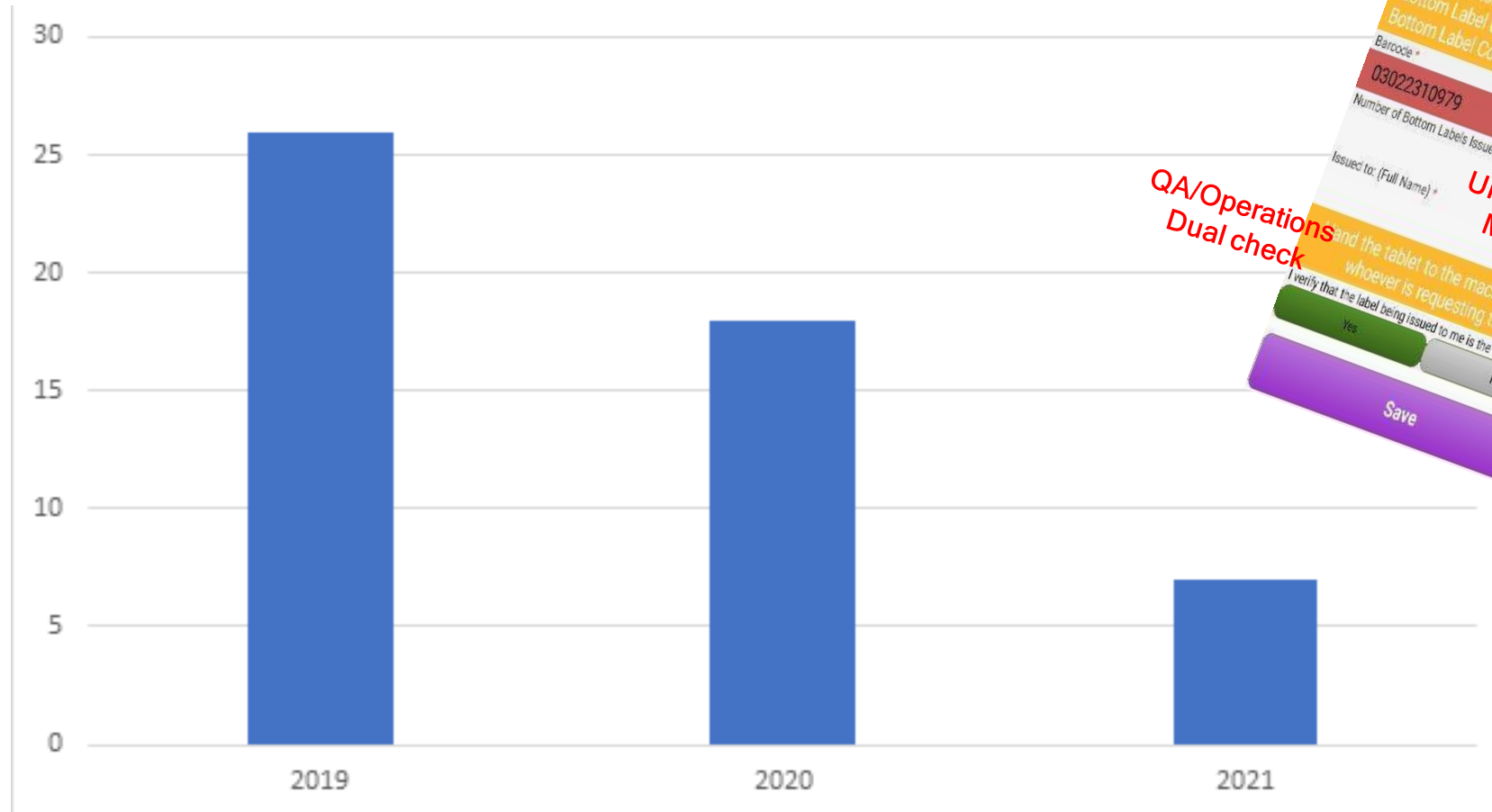


EXAMPLE

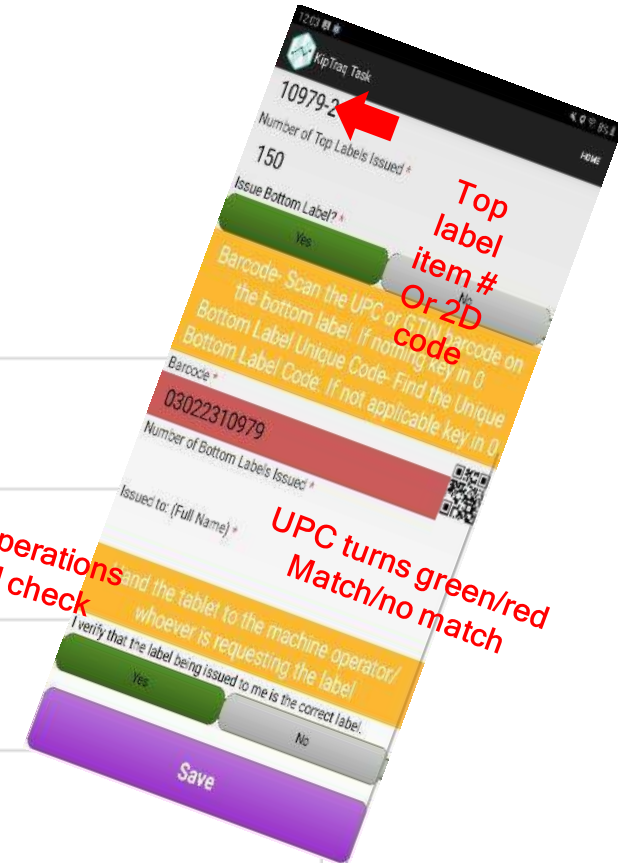
Listeria Swabs Past 6 Months (Routine + Investigational)																												
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	
Oct '21	2	3	5	0	0	21	2	17	5	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0				
Nov '21	4	6	13	3	3	0	0	6	0	1	1	1	0	0	1	0	0	0	0	2	0	0	0					
Dec '21	5	3	25	9	1	0	1	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0					
Jan '22	5	6	20	0	2		1	5	2	1	11	1	0	0	0	0	0	0	0	0	0	0	0	0				
Feb '22	3	7	3	3	0		0	0	0	1	0	0	2	0	0	0	0	1	0	0	0	0	0	0				
March '22	1	7	3	2	0		1	3	0	1	0	0	0	0		0	0	0	1	0	0	0						
Total Routine Positives	14	22	11	7	6	4	4	3	3	3	2	2	2	1	1	1	1	1	1	0	0	0	0	0				
Routine Swabs Taken	3283	4241	1727	2485	3640	545	1001	1307	1610	1359	2880	1808	4651	1125	1774	1288	3700	1813	1874	1769	1284	1118	3945	147				
Routine Positive %	0.4%	0.5%	0.6%	0.3%	0.2%	0.7%	0.4%	0.2%	0.2%	0.2%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%				
Total Invs. Positives	6	10	58	10	0	17	1	30	5	1	10	0	0	0	0	0	0	0	0	2	0	0	0	0				
Invs. Swabs Taken	349	703	2097	263	90	304	629	712	234	232	140	53	191	482	42	336	87	462	116	89	278	0	7	0				
Inv. Positive %	1.7%	1.4%	2.8%	3.8%	0.0%	5.6%	0.2%	4.2%	2.1%	0.4%	7.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	0.0%				
Total Positives	20	32	69	17	6	21	5	33	8	4	12	2	2	1	1	1	1	1	1	2	0	0	0	0				
Total Swabs Taken	3632	4944	3824	2748	3730	849	1630	2019	1844	1591	3020	1861	4842	1607	1816	1624	3787	2275	1990	1858	1562	1118	3952	147	58270	9711.67	116540	
Zone 1 Positives	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zone 2 Positives	2	7	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zone 3 Positives	5	24	64	13	0	14	4	13	7	2	1	0	1	1	1	1	0	1	1	2	0	0	0	0	0	0	0	0
Zone 4 Positives	2	0	5	2	6	7	1	14	0	2	11	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Zone 5 Positives		1						5																				0

Sum Month Annual

Tools To Use: Root Cause Analysis

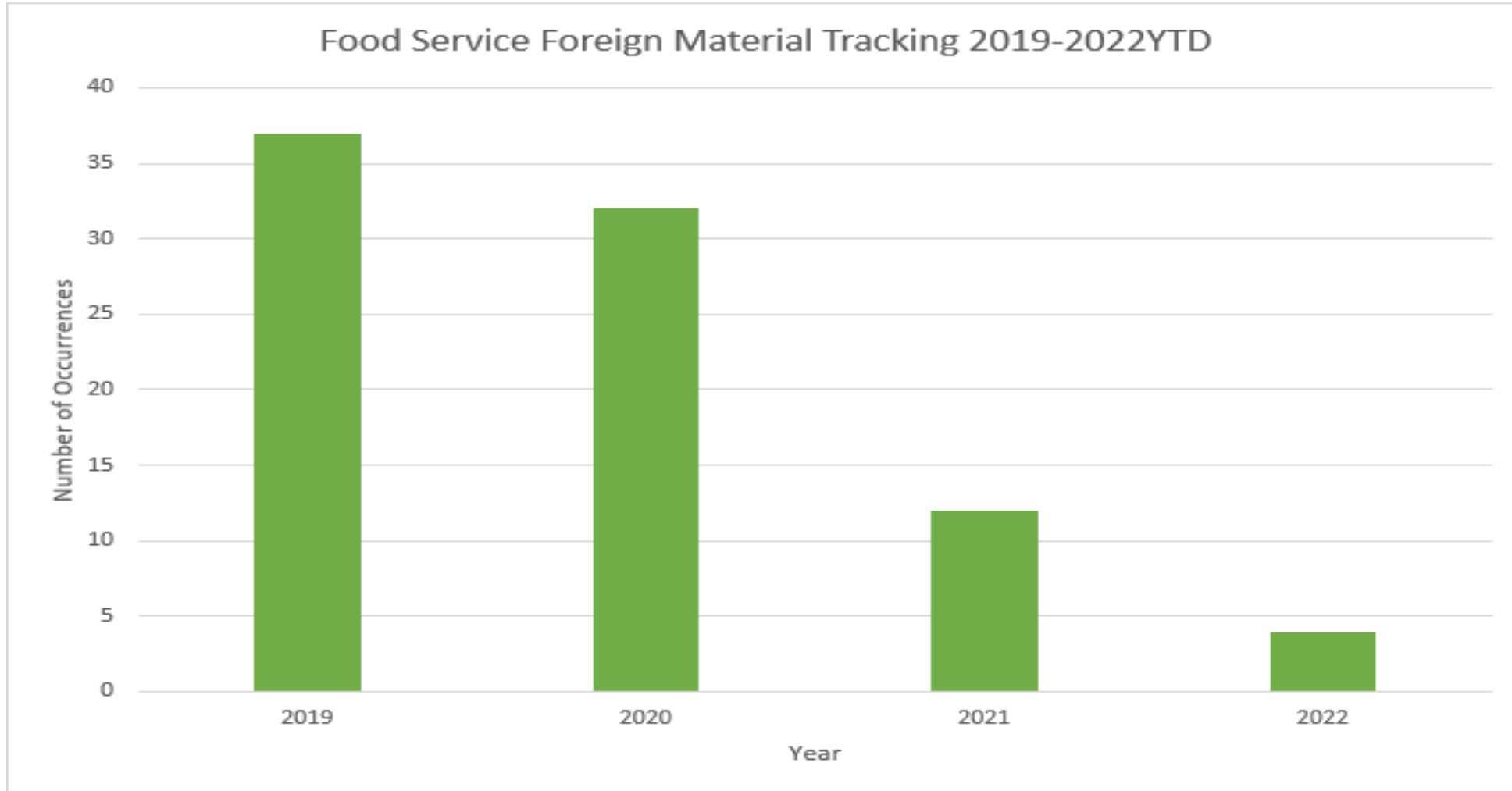


Label-related Recalls/Withdrawals



Tools To Use:

Leverage Your Customers' Expectations





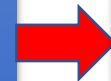
Case Study: Irrigation Water Treatment

2010
Uptick in on farm pathogen positives in desert growing region



2012

- Identified a farm with multiple lot failures associated with use of canal for premixing a crop amendment
- Began developing and implementing irrigation water treatment



2013-14
After continued implementation of water treatment we saw field positives virtually eliminated



2015-Current
Shared findings with Industry and added to LGMA standards



Case Study: Process Environmental Monitoring

- Randomized site selection
- Blinded data to lab
- Zero SARF prep time
- Consistency in location name
- Site “heat” mapping
- Faster location identification



*Spending Less Time Inputting the Data and More Time
Using Data to Identifying Root Cause*



Process Environmental Monitoring: Sampling By Zone

Samples are taken in accordance with national program

Variations include special projects, new equipment, and investigational

On average routine sampling includes 1 swab/1000 sq. ft./weekly

On average by zone: 25% zone 2, 60% zone 3, and 15% zone 4

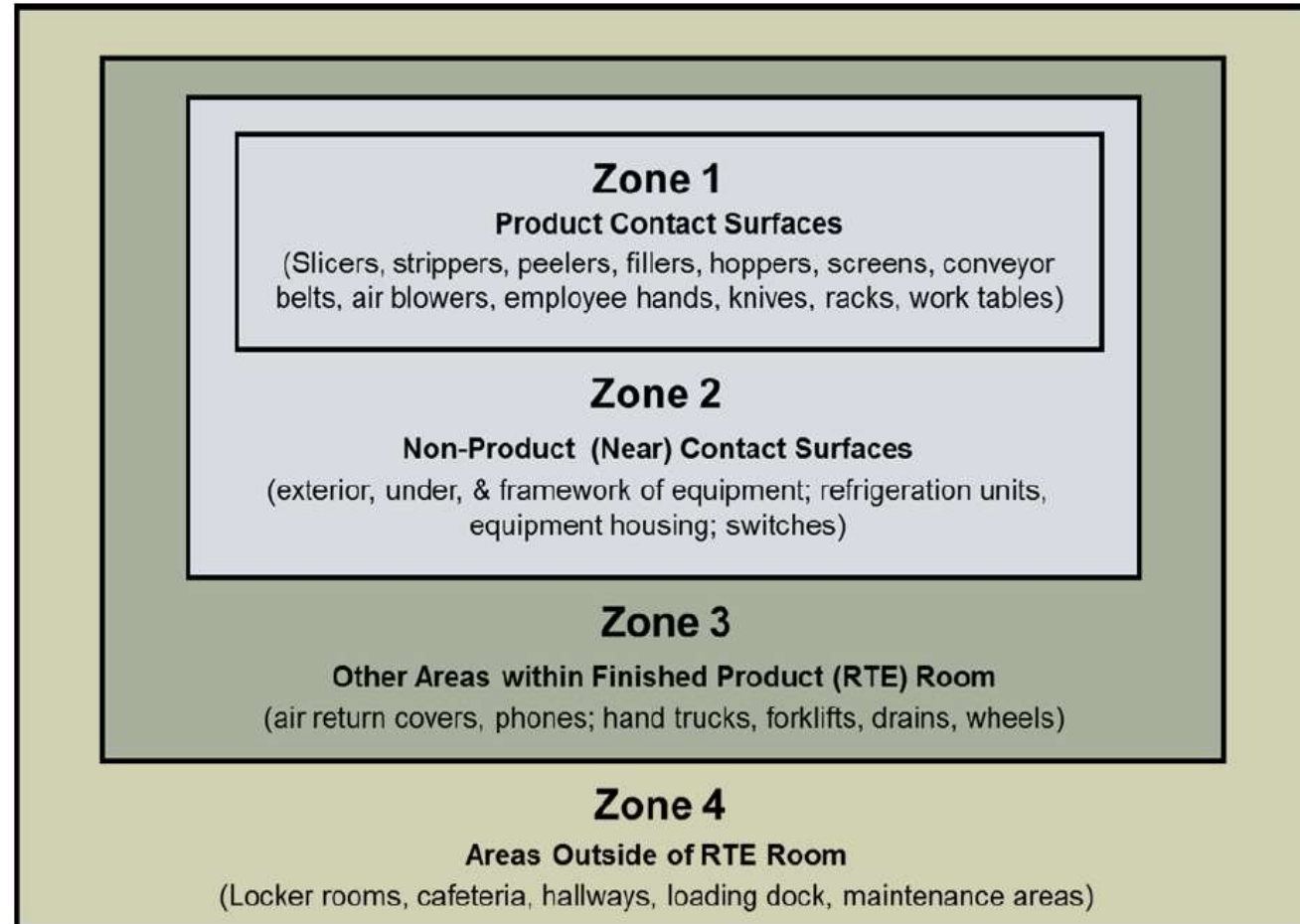


Figure 1: United Fresh Produce Association: Guidance on Environmental Monitoring and Control of Listeria for the Fresh Produce Industry (2



Process Environmental Monitoring: Let the Data Lead You



Following sampling data took us from the processing facility to the field

- On Ground Harvest of Kale
- Heavy Soil Load
- Cooling Practices



Process Environmental Monitoring: Mapping Traffic Flow

The Data Guided Strategic Placement of Barriers:

- Door Foamers
- Scheduled Dry Sanitizer Application
- Color coding of smocks
- Color coding of utensils
- Compartmentalization of processing
- Restricted access for employees
- Dedicated Product Flow



- Low Care Employees
- High Care Employees
- Facility Employees
- Trash / Food Waste
- Ingredients/ Packaging
- Finished Product



Process Environmental Monitoring: Some Equipment is Just Not Cleanable...



1st Generation



Next Generation



Process Environmental Monitoring: Equipment not Suitable for Full Sanitation Process



Gassing With ClO₂ Tablets



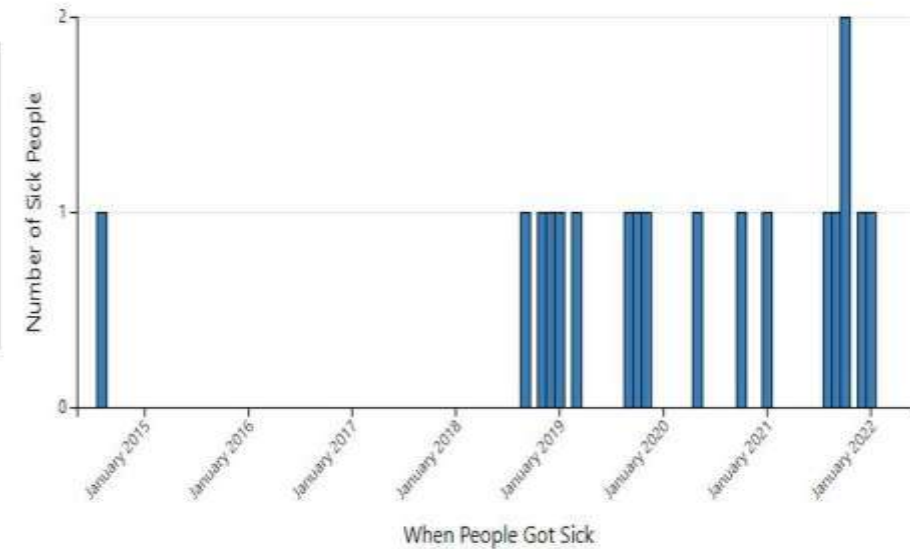
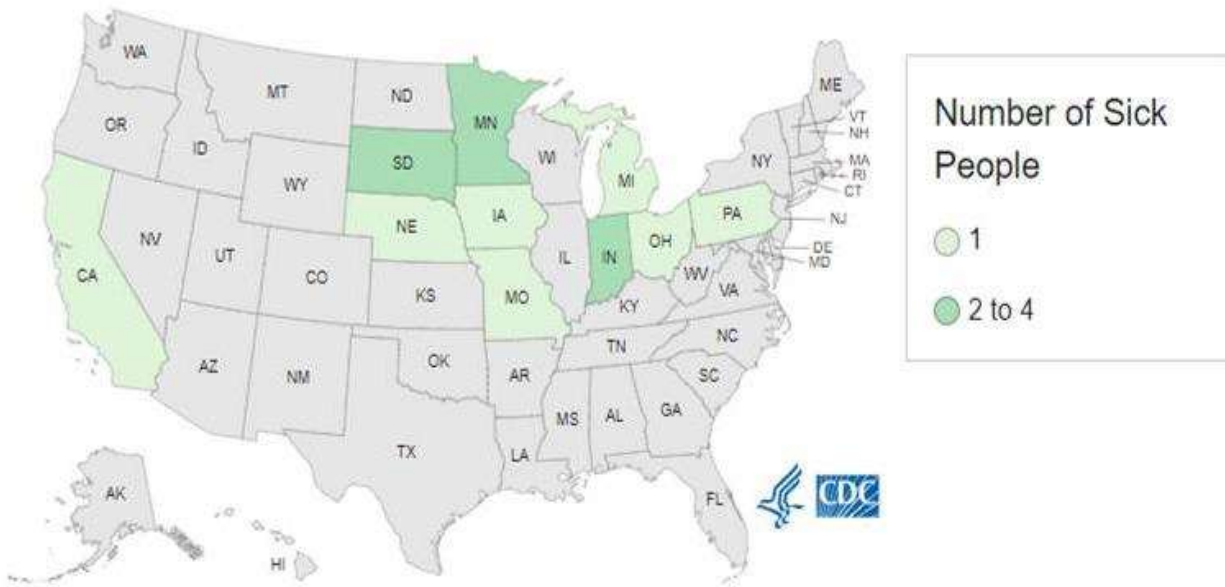
Localized Steaming



Understanding the Problem



The Race of Prevention Over Detection



The detection limit is getting smaller

The ability to link historical illnesses is a reality.

Recognizing The Important Things

Facility & Equipment Design Matters



Embedding Food Safety

Active within Research Community

What are the outbreaks telling us?

What are the investigations telling us?

What industry data telling us?

- *Crop and Soil Amendments*
- *Animal Intrusion*
- *Harvest practices*
- *Wash Systems*



CPS CENTER for **PRODUCE SAFETY**



Embedding Food Safety

Active Across the Industry

Building New Knowledge

- CPS STEC LG Colloquium (Industry Seasonal Effects Analysis)
- CPS Research- \$2 million
- CA Longitudinal Studies
- Grower funded research in water, pathogen detection and harvest equipment sanitation
- USDA SCRI Research Grants
- Compost Sampling
- CDFA Compost Sampling
- FDA Compost Sampling
- Taylor Farms “Romaine Rally” research project

Focusing on Prevention

- CA Ag Neighbors- Best Cattle Management Practices
- Education Outreach
- LGMA Technical Committee
- Soil amendments standards
- Adjacent land use assessment
- Healthy People 2030
- Pre-harvest testing (Appendix C)
- FDA Leafy Greens Sampling
- FDA Salinas Romaine Sampling 2020
- C.O.W.
- FDA Yuma Romaine Sampling 2021
- Western Growers Data Sharing Project
- Taylor Farms Boost



Smart Wash Solutions

SmartWash Solutions is a food safety solutions provider with an industry-leading wash-water process controller. A revolutionary calibration system, paired with a data system providing real-time feedback, provides transparency for processors and their customers.

- Protected over **43 billion lbs** of fresh-cut produce since inception
- Supports operations and food safety in **8 countries**
- **20 billion servings** annually without a single confirmed food-borne illness outbreak on a smartwash system-protected line
- Reduces chemical usage and lessens demand for water, electricity and labor
- **Mitigates cross-contamination** in the wash line with wash enhancers, for original and organic food, that boosts chlorine's effectiveness

Over the years, SmartWash Solutions has been recognized for its breakthrough technology:

- Produce Marketing Association (PMA) Science & Technology Circle of Excellence Award (First-Ever, 2017)
- Food Quality Award by Dupont and Food Quality Magazine awarded to SmartWash customer Taylor Farms Foodservice (2013)
- United Fresh Food Safety Innovation Award: Best New Product (2011)



Embedding Food Safety

How has your process and program evolved?

1. Have you trained/calibrated Leadership?
2. Do you share key learnings?- internally & externally...
3. Have you employed innovative sanitation techniques?
4. Do you have true zone control and monitor traffic Flow
5. Are you active within Food Safety Academia?

