



Managing Listeria In a Ready To Eat Environment

October 2009

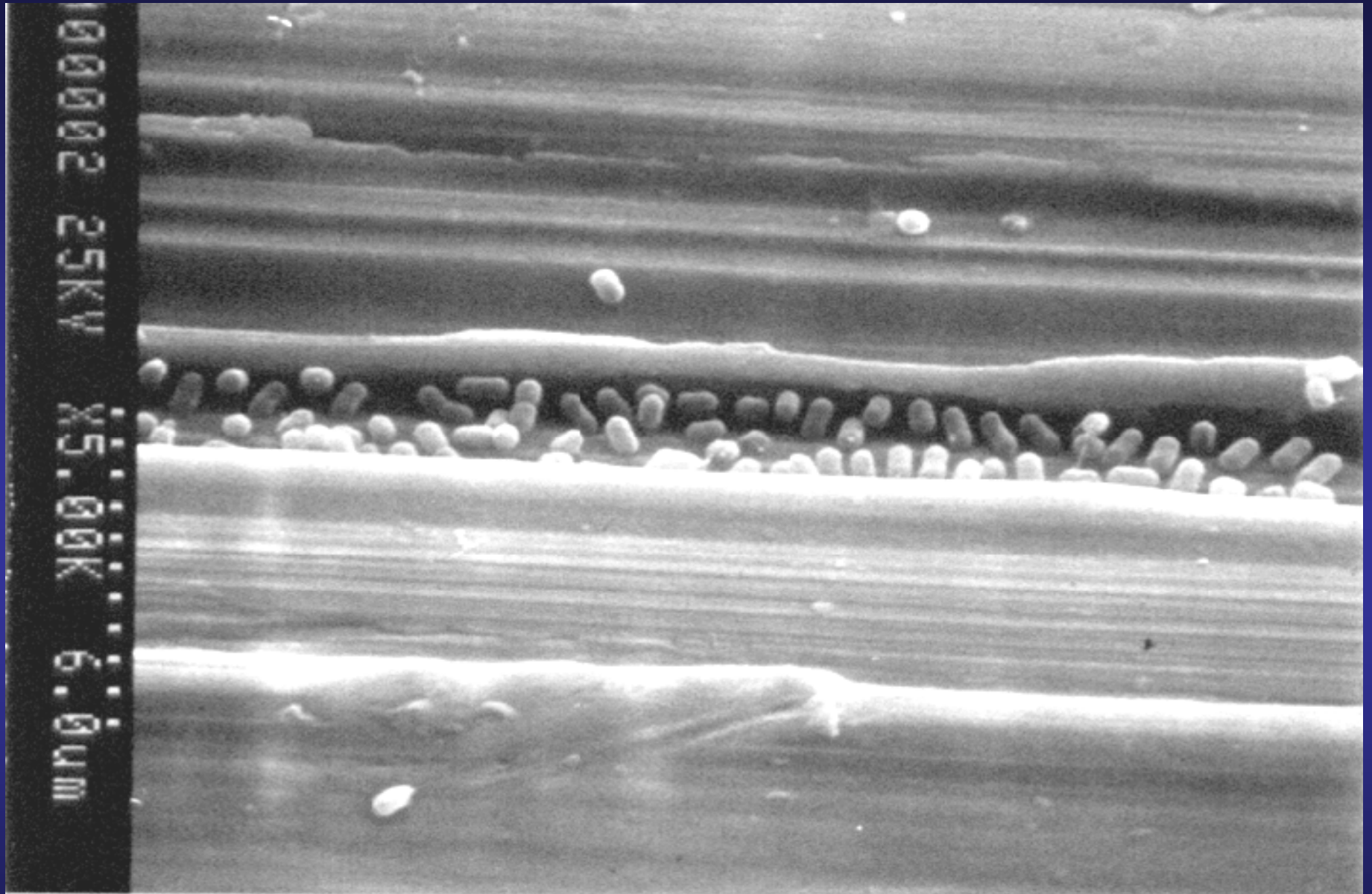
Acknowledgements

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What Great Taste Is All About





A scratch on a piece of stainless steel acts a harborage point for Listeria.
Courtesy Univ. Wisconsin, Madison

Why?

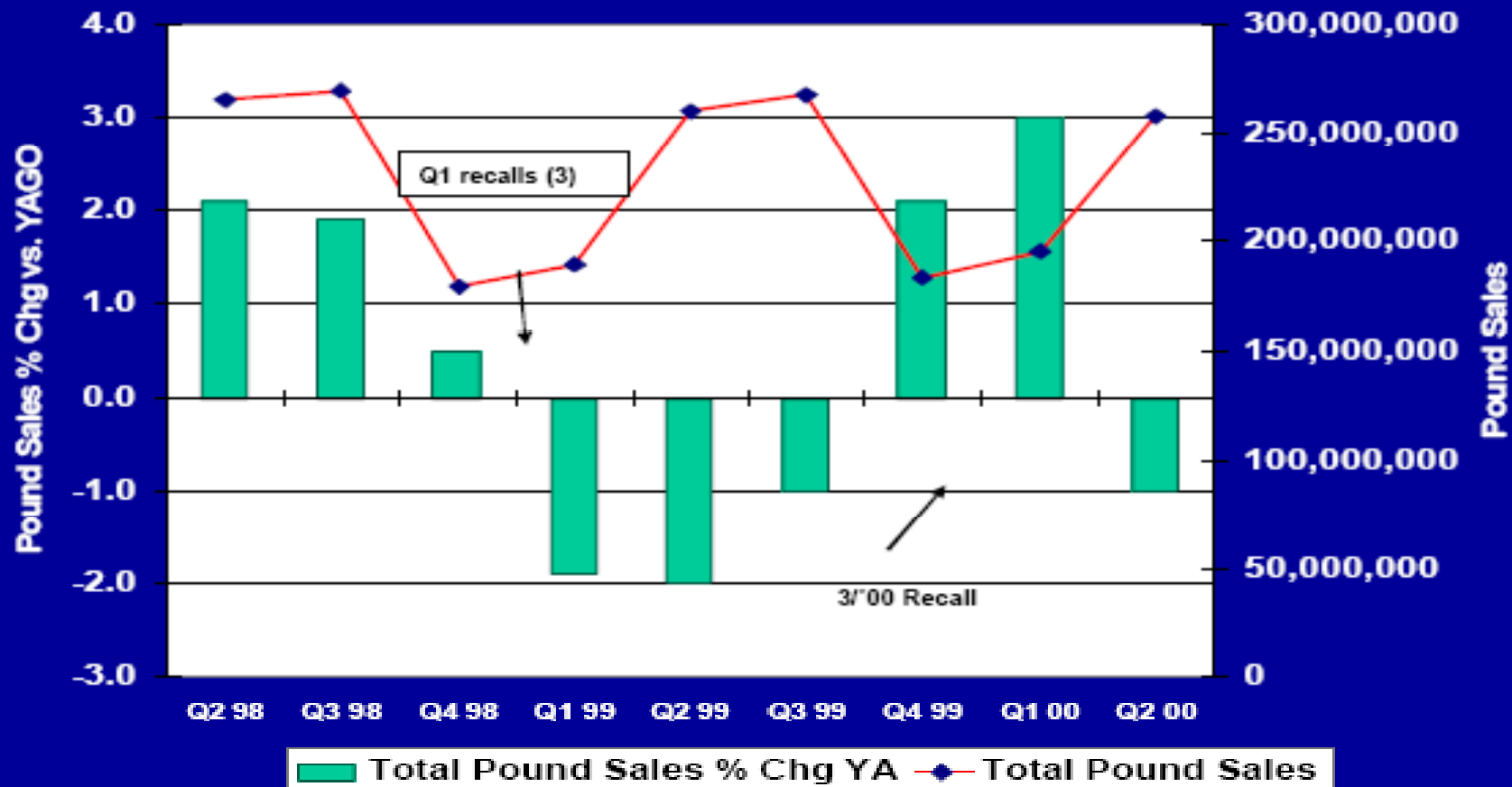
***Selling Safe Food is the
Right Thing to Do.***

***It is Good for Business and
it is good for our
consumers.***



Hot Dog Category

Total Hot Dog Category



Source: AC Nielsen Hot Dog Category Data, 1/14/99



Share Food Safety “Best Practices”

Potential Contamination Scenarios

From R.B. Tompkin

1. Single isolated event

- One package of product contaminated via transfer point in process

2. Only one batch or lot

- Line contaminated via transfer point
- Normal cleaning eliminates line contamination

3. An outbreak with multiple lots of food from a single source

- Growth niche in a processing or packaging line
- A special event that impacts several days of production like a construction event



Strategies to Control

1. Prevent *Listeria* growth in a niche or other site that can lead to RTE product contamination.
2. Implement a *Listeria* sampling plan to assess in a timely manner whether the processing area is “under control.”
3. Respond to each positive product contact sample or non product contact sample with a corrective action as rapidly and effectively as possible.

Strategies to Control

4. Verify the problem has been corrected.
5. Review and analyze data to ensure the *Listeria* control program is working.
6. Implement appropriate post-lethality technology to eliminate, reduce or prevent the growth of *Listeria* in your products.

EMP Realities

(Environmental Monitoring Program)

- It is an Industry wide best practice and the only “real” tool we have.
- It develops process control data to permit problem solving and process improvements to be made.
- Sampling must be biased rather than truly random
- It is very effective at identifying Scenario 3 situations

EMP Realities (cont)

- It is not “statistically” effective for scenarios 1 or 2 but data w/ corrective action for +’s will reduce the potential for product contamination.
 - Listeria is rarely evenly distributed in a lot
- It provides useful data to improve operational practices while finished product testing does not.

Growth Niche vs. Transfer Point

Many positive sites found during monitoring are not growth niches. They are transfer points (i.e., a product handler's gloved hands, floor sample in high traffic pathway).

Transfer points are not growth niches because the organism is eliminated during the cleaning and sanitizing process.

Growth Niche vs. Transfer Point

A Growth Niche is a:

Location harboring the organism after the routine sanitation process for that area has been completed.

These must either be designed out of the system or managed as a part of the process.

Example

- Hollow roller on conveyor transporting food product
 - Hollow rollers not disassembled, cleaned and sanitized or heat treated in a manner to eliminate any contaminating organisms can become growth niches.



An Effective Sampling Program Will Yield Positive Samples

- The sampling plan should be designed to detect *Listeria spp*, if it is present.
- An effective sampling program Will Yield Positive results.
- Positives must be treated as a “success” because they enable corrections that can be made to protect consumers!
- The ultimate goal is a *Listeria* negative environment, this is difficult, but NOT IMPOSSIBLE to maintain over the long term.



Listeria Equation

Traffic Patterns + GMPs + Dry, Uncracked, Clean Floors + Sanitary Design Of Equipment & Building + Effective Sanitation Procedures Inc. period cleaning

= *Listeria* Control

High Risk Situations

- A drain backup
- A packaging line is moved or modified significantly within a facility
- There is an equipment breakdown
- Personnel are used interchangeably between raw and cooked products
- Construction in or adjacent to CPA
- Loss of refrigeration in a room
- Wet area or process

High Risk Situations

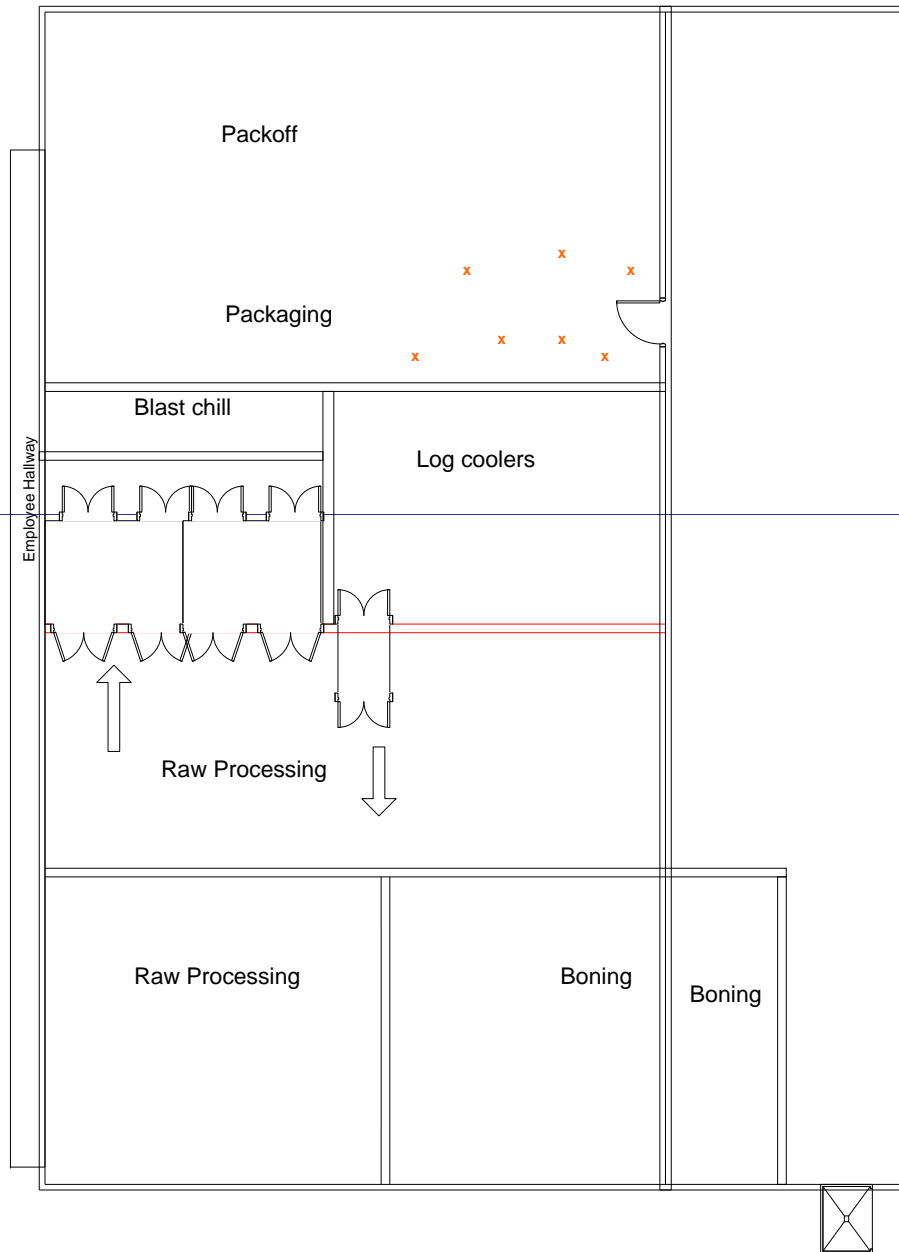
- Transfer of equipment from storage or another plant
- Use of high pressure water or a wet in-process clean up
- Rinsing or cleaning equipment on the floor
- Equipment used interchangeably between raw and cooked products
- Crack in floor that retains water
- No separation of Raw – RTE (inc. maintenance)
- No separation of people and equipment on RTE packaging lines

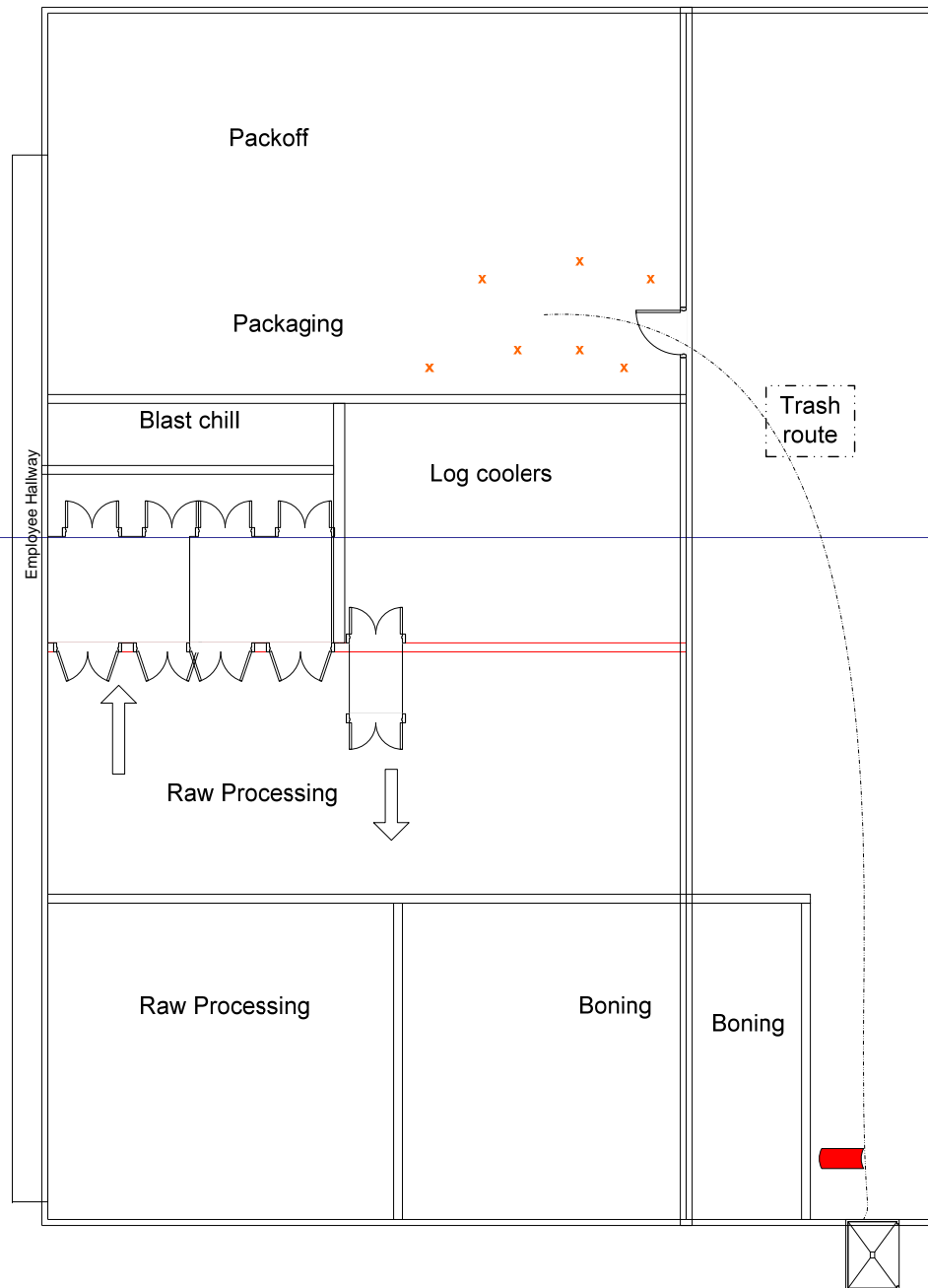
Trash Flow Example

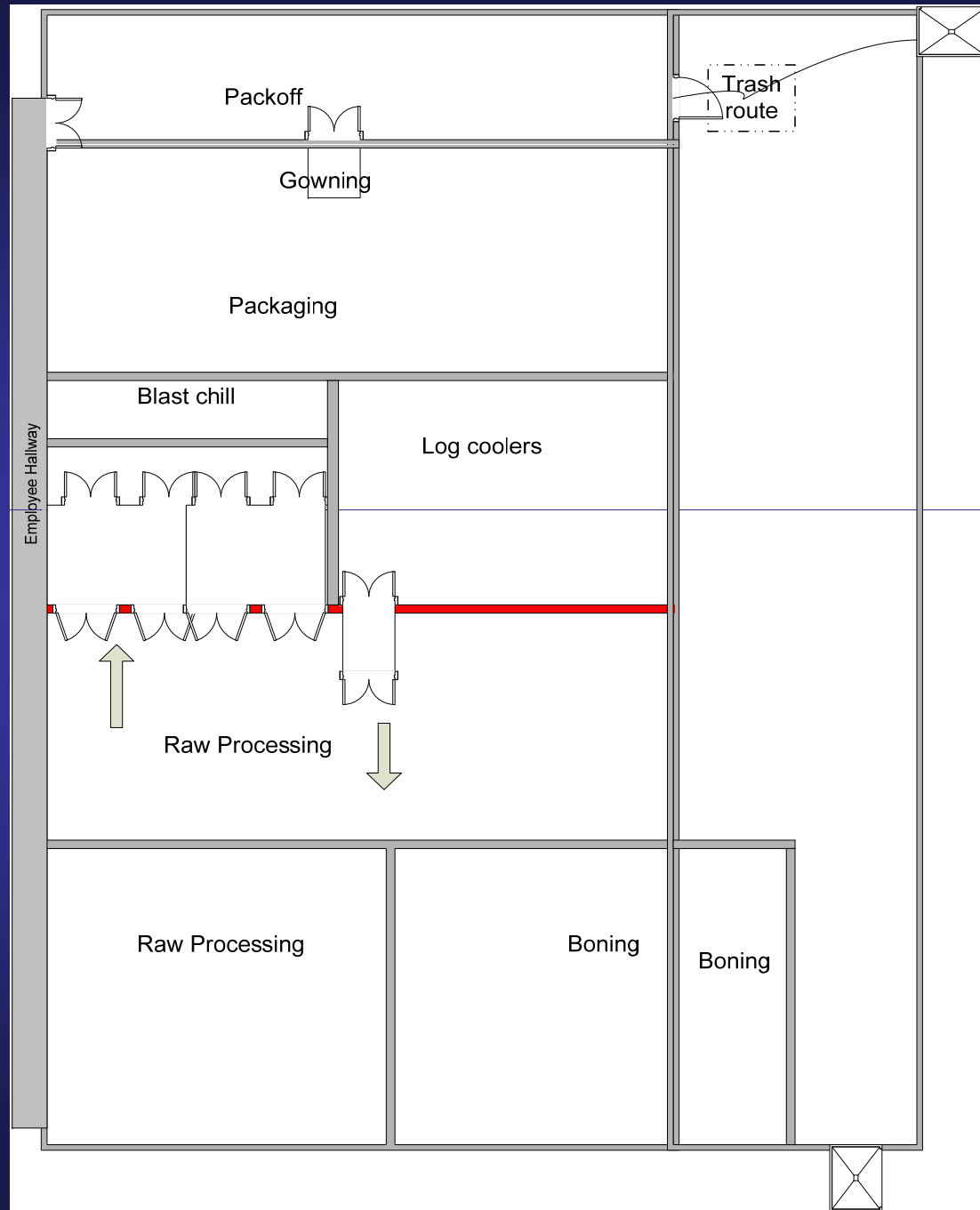


Time Frame = Late 90's

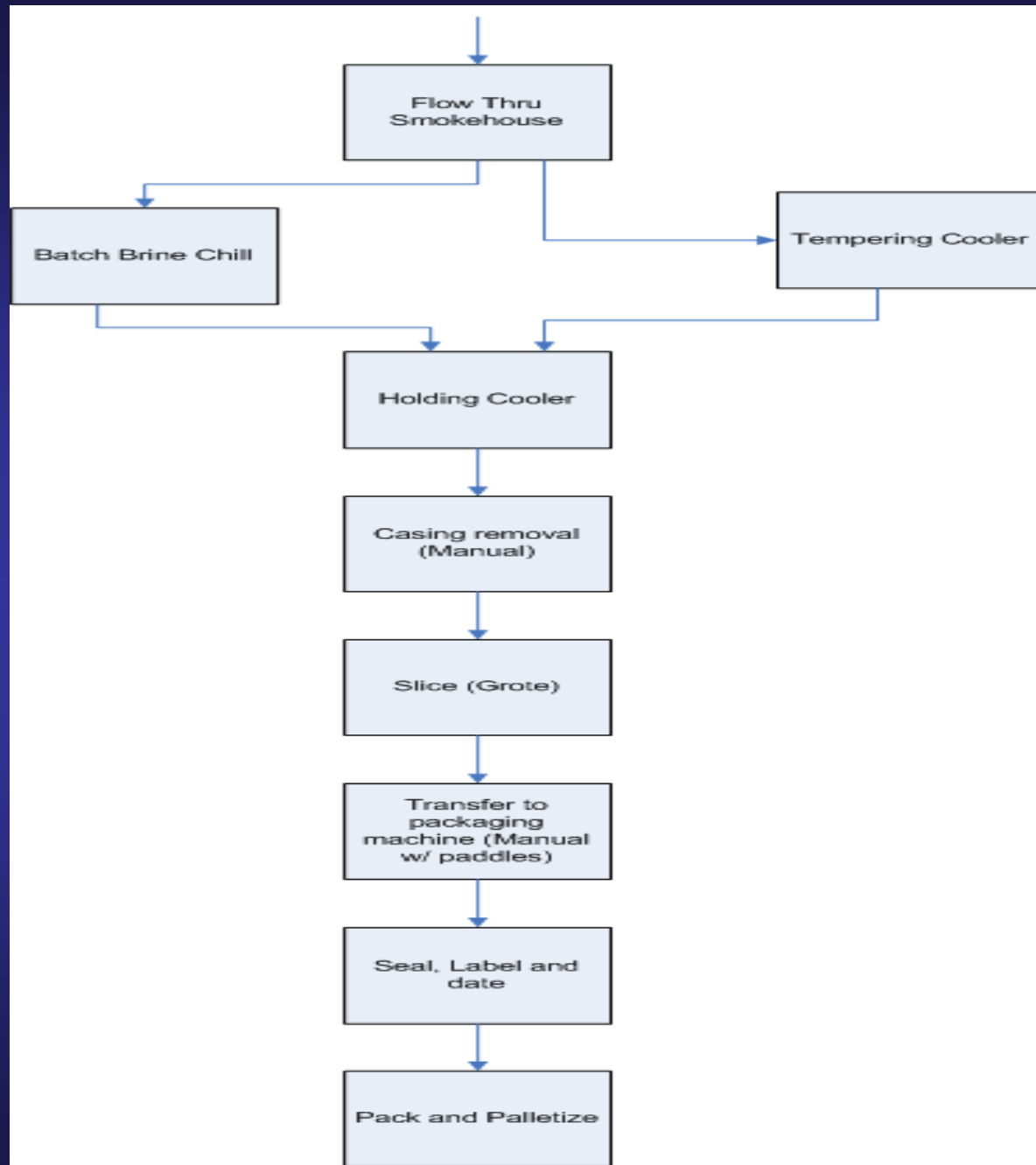
- Systematically removing growth niches
- Very active Equipment and Facility design changes occurring
- New RTE floors, cooking some equipment
- Prior to Critical Air Handling Units
 - Wet spots and puddles more likely to be positive than dry spots







Grote Slice Line Example



Site	Zone	20-Aug	28-Aug	3-Sep	4-Sep	5-Sep	8-Sep	10-Sep	11-Sep	12-Sep	15-Sep	18-Sep
Grote 006	1	0/2	0/1	0/1		0/1	0/1	0/1	0/1		0/1	
Product holding table	1	0/2		0/1					0/1		0/1	
Product rod/smoke stick	1											
Scissors/ Knives	1	0/2				0/1						
Scale	1	0/4										
Aprons and Gloves	1		0/2									
Product transfer paddles	1		0/1			0/1			0/1		0/1	
Product Thermometer	1											
Cage/Tree	2											
Product holding table	2											
Grote 006	2			0/3	0/1				0/1			0/2
SS Table	2		0/2			0/1	0/1				0/1	
Packaged product catch pan	2	0/4	0/2									
Boxing Scale	2		0/1							0/1		
Packaging Machine	2		0/2									
Inedible Pan	2				0/1							
Date Gun	2											
Rod Cart Handle	3											
Box making stand	3											
Pallet	3				1/1							
Floor Drain Covers	3					0/1				1/1		
Floor Step Stand	3											
Cooler (Temper and Hold)	3					1/2		0/1	0/1	0/1		
Brine	1											
Brine Equipment	2											
Pre operational sites	1&2											
Product rod/smoke stick												
Cage/Tree												
Product Quarantined												
Product test results (n=XX)												



Site	Zone	19-Sep	24-Sep	26-Sep	2-Oct	3-Oct	10-Oct	14-Oct	15-Oct	16-Oct	17-Oct	20-Oct	21-Oct	22-Oct
Grote 006	1		0/1		0/4		0/1	1/4	0/4	0/6	0/5	0/2	0/5	0/1
Product holding table	1		0/1		1/1		1/1	1/2	0/2	0/1	0/2	0/1	0/1	0/1
Product rod/smoke stick	1				0/1				0/1				0/1	
Scissors/ Knives	1								0/1				0/2	
Scale	1													
Aprons and Gloves	1						1/1	0/1	0/1	0/1	1/2	0/1		
Product transfer paddles	1		0/1		0/1				0/1					
Product Thermometer	1													
Cage/Tree	2						0/1	0/1	0/5	0/5	0/2		0/2	0/1
Product holding table	2		1/1			0/1	0/1						0/2	
Grote 006	2				0/2			1/3	0/2	0/1	0/6	0/4	0/3	
SS Table	2		0/2											
Packaged product catch pan	2													
Boxing Scale	2		0/1	0/1				0/1						0/1
Packaging Machine	2													
Inedible Pan	2	0/1												
Date Gun	2				0/1									
Rod Cart Handle	3													
Box making stand	3	0/1	0/1											
Pallet	3													
Floor Drain Covers	3													
Floor Step Stand	3								0/1					
Cooler (Temper and Hold)	3	0/1	0/2	0/1			0/10	0/4	0/3	0/3	0/4	0/7	0/5	0/1
Brine	1													
Brine Equipment	2													
Pre operational sites	1&2						0/18	0/8	0/9	0/9		0/7	0/8	0/8
Product rod/smoke stick							1/1							
Cage/Tree								1/1				1/1	1/2	
Product Quarantined							Q	Q			Q	Q	Q	Q
Product test results (n=60)							Neg	Neg		Neg	Neg	Neg	Neg	

New sampling and control protocol implemented 10/1

Bacon slice line separated from RTE with a wall on 10/6

Deep Clean of Grote complete 10/9



Site	Zone	23-Oct	24-Oct	27-Oct	28-Oct	29-Oct	30-Oct	31-Oct	1-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	10-Nov	12-Nov
Grote 006	1					0/1		0/1		0/4		0/2	0/1	0/1	0/4	0/3
Product holding table	1	0/1	1/1	1/2	0/2	0/3	0/2	0/1		0/2	0/1	0/2	0/1	0/1	0/1	0/1
Product rod/smoke stick	1			1/1	1/1											0/1
Scissors/ Knives	1					0/1				0/2		0/1	0/1	0/1	0/1	0/1
Scale	1					0/1										
Aprons and Gloves	1						0/2	0/1		1/2						
Product transfer paddles	1					0/1				0/1		0/2	0/1	0/1	0/1	
Product Thermometer	1									0/1						
Cage/Tree	2		3/3		2/16					0/1				0/3		0/1
Product holding table	2			1/1	0/2	0/1	0/2	0/1				0/3	0/1	0/2		
Grote 006	2			0/4	0/4	0/5	0/4	0/3		0/2		0/4	0/2	0/2		
SS Table	2									0/1						
Packaged product catch pan	2					0/1										
Boxing Scale	2															
Packaging Machine	2			1/1												
Inedible Pan	2															0/1
Date Gun	2															
Rod Cart Handle	3															0/1
Box making stand	3															
Pallet	3					0/1										
Floor Drain Covers	3															
Floor Step Stand	3									0/1						
Cooler (Temper and Hold)	3				0/2	0/1	0/2	0/4	0/2			0/2	0/2	0/2		
Brine	1					1/2	0/2	0/2								
Brine Equipment	2			1/1	0/4	1/4	3/4	8/25	0/4	0/2	0/4	0/1				
Pre operational sites	1&2		0/4		0/13		0/7	0/7		0/7	0/7		0/7	0/10	0/7	0/7
Product rod/smoke stick																
Cage/Tree																
Product Quarantined		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	N/A	Q	Q	Q	Q
Product test results (n=60)		Neg	Destroy	Neg	Destroy	Neg	Neg	Neg	Neg	Neg	Neg	Neg	Destroy	Release	Release	Release

Brine chill taken out of commission and product air chilled 10/31

Last slice of brine chill WIP 11/6



SUMMARY

An Effective program is:

- **Environmental testing**

❖ **(FIND IT!!!)**

- **Response to a positive finding**

❖ **(FIX IT!!!)**

- It is possible to control Listeria and prevent contamination of food contact surfaces!!!

Summary

- An aggressive environmental sampling program is the only way to provide data that will allow process improvements to be made which will reduce potential product contamination.
- Listeria Sampling Programs should be designed to include food contact sampling on every RTE line every week.
- All Positives must be investigated

Summary

- Seek & Destroy Missions must be very thorough to find growth niches
- Preventative equipment interventions or process changes must be instituted to manage the growth niches.
- All High Risk situations must be managed to avoid contamination of product or the environment