

How to Comply with the 2006 National Food Safety and Standards Act

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Rapid Methods in Automation and Microbiology

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What is Food?



- Articles consumed by humans and animals
- Includes chewing gum and drinking water

What is Wholesome Food?



- Nutritionally balanced
- Food without defects

What is Safe Food?

- Food that does not cause injury or harm when consumed by humans or animals
- Trust is placed in food manufacturer to produce safe food
- Consumers are unaware of dangers with food!



Adulterated Food

- **Food containing poisonous or deleterious substances**
 - Basis for HACCP
- Food containing added poisonous or deleterious substances
- Food containing filth from animal or vegetable matter
- **Food prepared under unsanitary conditions**
 - Basis for Good Manufacturing Practices

Before You Do Anything: Identify The Hazards

- **Hazards:**
 - a. Physical- peeling paint, rust, glass, metal, wood or plastic
 - b. Chemical- grease, lubricants, pesticides, allergens, condensation
 - c. Biological- insects, microorganisms, rodents, birds, and their by-products

How Does a Food Manufacturer Combat Hazards?

- Multifaceted programs taking a holistic view of a food plant from the outside in
- Stop, look and listen!
- Seek root cause analysis on eliminating “cause” and not reacting to symptoms

Remember We Have Laws To Follow!

- Food laws help ensure unadulterated product during food manufacturing
- Complying with the laws is good business
- Theory: prescriptive=> manufacturing flexibility=>innovation in plant equipment and design

Basic Food Laws

- Good Manufacturing Practices (GMPs)
- Hazard Analysis and Critical Control Points (HACCP) Program
 - Preventive food safety program
 - Critical point vs Critical control point

UNDERSTANDING AND INTERPRETING FOOD SAFETY STANDARDS (GMP Example)

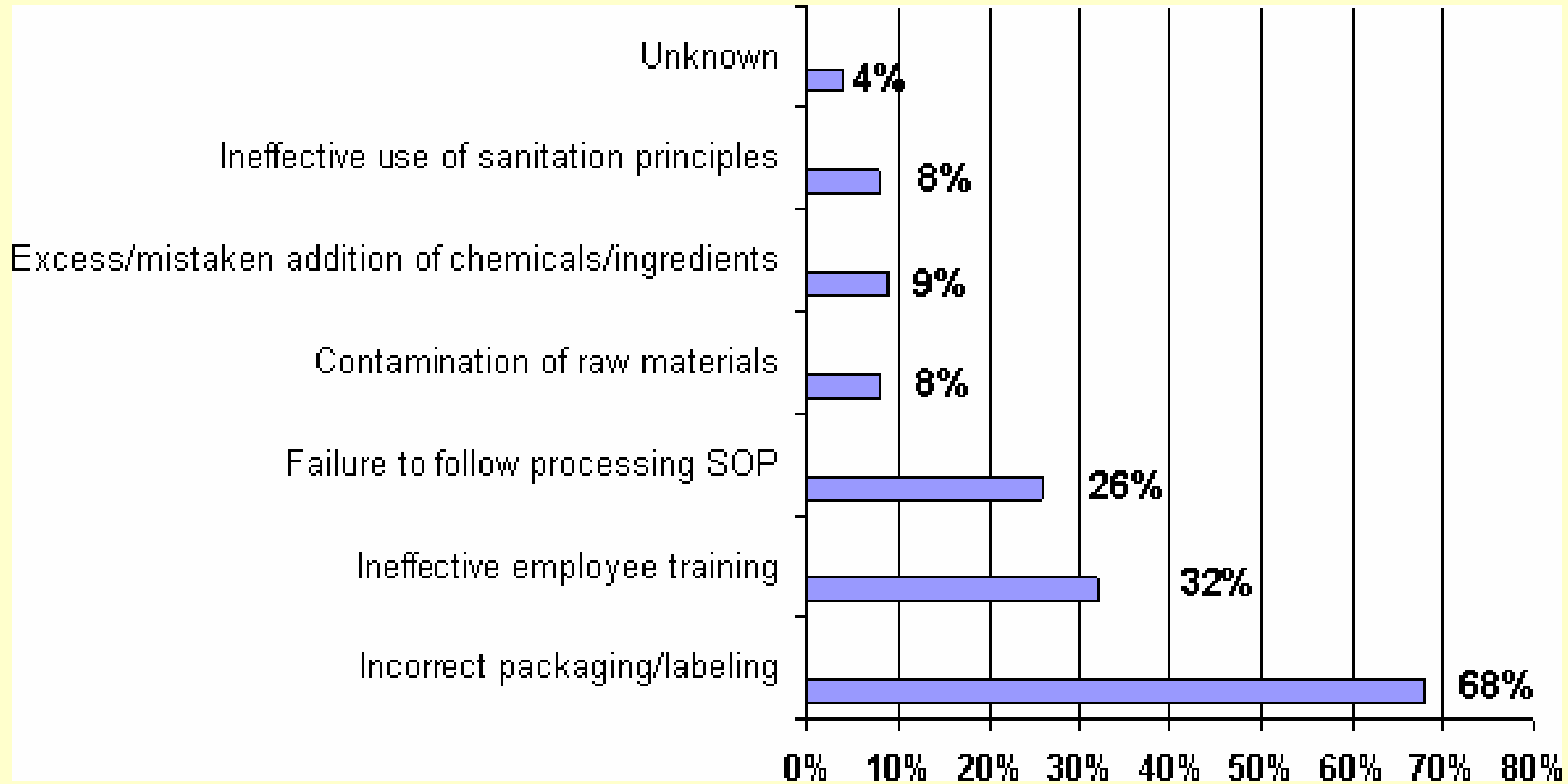
What is the language?	How will the company comply	How will the company assure compliance
<p>110.10 Personnel</p> <p>(a) Disease control. Any person who, by medical examination or supervisory observation, is shown to have, or appears to have, an illness, open lesion, including boils, sores, or infected wounds, or any other abnormal source of microbial contamination by which there is a reasonable possibility of food, food-contact surfaces, or food packaging materials becoming contaminated, shall be excluded from any operations which may be expected to result in such contamination until the condition is corrected. Personnel shall be instructed to report such health conditions to their supervisors.</p>	<p>110.10 Personnel</p> <p>(a) Disease control. Employees who are sick or have open wounds, sores, boils, or bandages on such wounds, shall report such conditions to their supervisor, and must not work with food, food-contact surfaces, or food packaging materials.</p>	<p>110.10 Personnel</p> <p>(a) Disease control.</p> <p>A form showing which employee was excluded in performing operations, the date, and time, and employee's reassigned duties if not absent.</p> <p>Number of employees excluded by month from a particular operation.</p>

What is the language?	How will the company comply	How will the company assure compliance
<p>110.20 Plants and grounds.</p> <p>(a) Grounds. The grounds about a food plant.....limited to:</p> <p>(1) Properly storing equipment, removing litter and waste, and cutting weeds or grass within the immediate vicinity of the plant buildings or structures that may constitute an attractant, breeding place, or harborage for pests.</p> <p>(2) Maintaining roads, yards, and parking lots so that they do not constitute a source of contamination in areas where food is exposed</p>	<p>110.20 Plants and grounds</p> <p>(a) Grounds. The grounds surrounding the food plant will be made of concrete and maintained in such a fashion so as to eliminate food contaminants.</p> <p>(1) Equipment cannot be stored on grounds. All equipment must be stored in the equipment storage shed on grated shelves. The perimeter of the food plant will have a 2-ft vegetation-free barrier zone. Shrubs and trees will be trimmed at established schedules and inspected for rodent and insect activity.</p> <p>(2) All roads shall be paved kept in good repair.</p>	<p>110.10 Plants and grounds.</p> <p>(a) Grounds.</p> <p>Daily inspection of the food plant exterior (a form is needed for this)</p> <p>A separate form showing when roads were repaired, shrubs, and bushes were trimmed.</p>

Table I: Number and percent of recall actions by industry (N=1146)
1999-2003

Industry	No. recall actions	Percent
Bakery products	217	18.94%
Fishery/seafood products	135	11.78%
Bean/vegetable products	88	7.68%
Multiple food dinner products	85	7.42%
Non-chocolate candy products	75	6.54%
Fruit products	66	5.76%
Ice cream products	62	5.41%
Chocolate products	50	4.36%
Snack food products	48	4.19%
Beverage/beverage base products	38	3.32%
Cheese products	29	2.53%
All other products	253	22.07%
Total	1146	100%

Recall actions by specific processor-level problems (N=1146)



Proactive Versus Reactive Food Industry Programs

- Former, you're a hero! Latter, you're a scapegoat!
 - Knowledge, intent, and foreseeability
- Prevent ALL “pest” harborages by sanitary design and program design
- Know thy plant and thy neighbors!
- Must have personal accountability
 - Attitude to do the right thing

Proactive Versus Reactive

- People, people, people- food plant is a community
- People make mistakes!
- Are people adequately trained to do the job?



Bulls Eye Approach-Outside

- Outside- farthest away and work toward plant
 - a. Perimeter secured/fenced?
 - b. Neighbors- good and bad
 - c. Wind patterns, sun exposure on building
 - d. Landscaping



Bulls Eye Approach-Outside

- e. Pest interceptors such as rodent bait stations/traps or insect pheromone traps
- f. Paved lots; eliminate standing water and evils of crushed rock
- g. Roof areas- smooth, clean, ductwork, gutters



Unsanitary conditions outdoors

Building Exterior

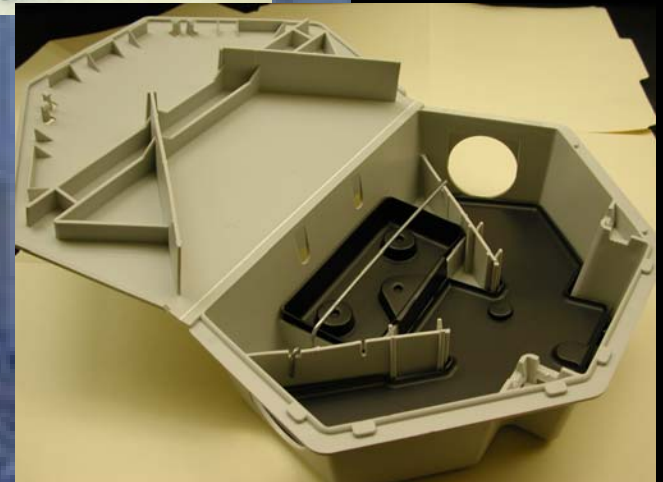


Shrubs too close to building

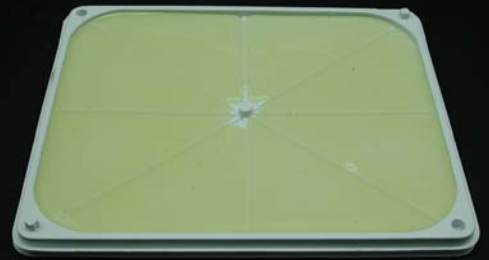
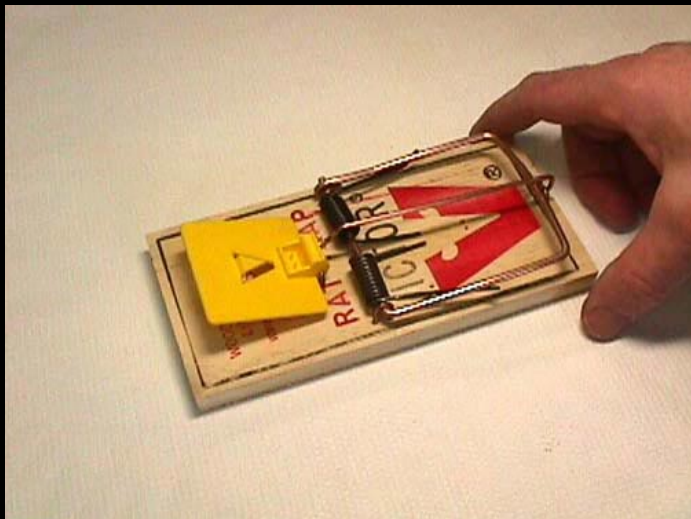
Have an 2 ft vegetation free barrier zone



Bait Stations



Traps



Birds

Pigeon

English or House Sparrow

European Starling



Bird Management



Exclusion

Repellents

Non-chemical

Chemical

Trapping

Exclusion





Exclusion tactics

Exclusion



Repellents



**4. The Birds,
10 Oz. Cartridges**

Bird Repellent-Buy one or a Case



Bulls Eye Approach-Outside

- h. Lighting- mercury vapor highly attractive versus metal halide; illuminate back onto building; never above doors or air intakes
- i. Dock/rail/personnel doors/windows
- j. Storage areas- protected, up off ground, no pallets
- k. Building seams

Pest entry points



Bulls Eye Approach-Inside



- Start at receiving
 - a. Dock/waste areas
 - b. Light traps, pheromone traps, rodent control, air curtain failures
 - c. Any need to separate/segregate employees for micro control?
 - d. Shoe/Uniform program



A good pest exclusion practice



Improper stocking or storage practices

Give 12 inches of space between the wall and pallets
Pallets, 6 inches off the floor



Bulls Eye Approach-Inside

- e. Restroom/locker rooms- slanted top of lockers, no personal food storage, periodic locker cleanouts/pest control
- f. Product flow- raw materials in one end and finished product out the other
- g. Positive versus negative air pressure

Poor Sanitation



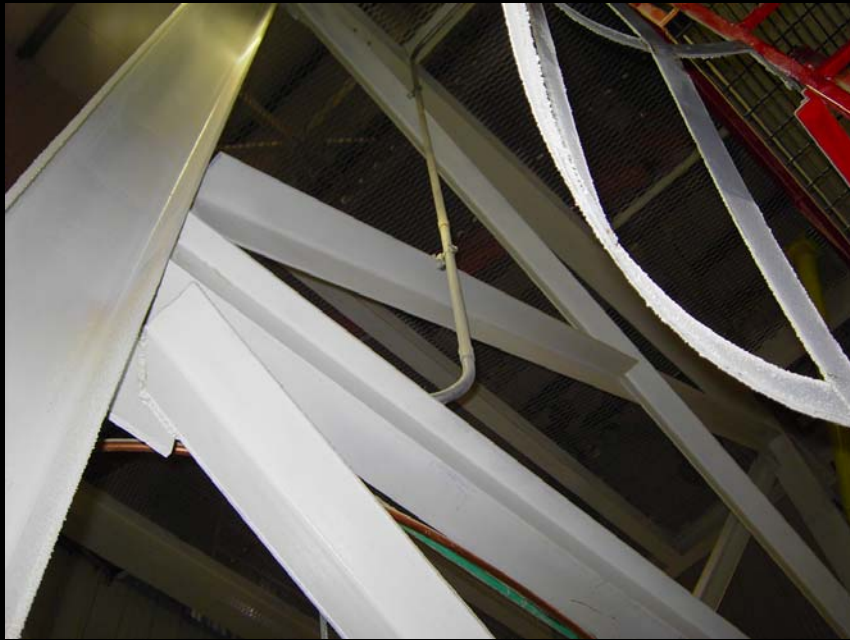
Spillage



Prevent unsanitary conditions

Building Interior: Unsanitary Conditions

Flat surfaces



Clean or avoid flat surfaces
Discard unused equipment

Storage of unused equipment



Equipment

- What type of product is produced?- dry, wet, caustic, acidic, or perishable
- Risks- meat, seafood, juices are regulated
- Wet or dry cleaned, manual, COP, CIP, vacuum, air

Equipment

- Is there a cross-functional member equipment review/approval program?
- No unprotected glass
- Ceilings/overheads- no ledges, false ceiling trap
- Food contact surfaces-corrosion resistant, non-porous, non-absorbent, and non-puddling

Equipment



- Easy, quick disassembly and accessible
- Micro/allergen cleanable and verifiable
- No hollow areas, want continuous welds versus stitch

Inspections

- Not a waste of time; must know plant inside and out
- Multidisciplinary in membership team, cross-train, rotate, document deficiencies observe for proper follow up
- Close the loop; not just a “list” creator; root cause analyses

Inspections



- Develop checklists
- Take corrective action/develop a preventive solution
- No third party inspector should inspect your plant and find an un-inspected area by the team

Master Sanitation/Cleaning Schedules

- Daily versus non-daily; weekly, monthly, quarterly, semi-annual and annual
- Only way you can answer question: “when was the last time this was cleaned?”
- Leave no space blank
- Keep it simple
- Floor drains
- Evaluate and determine economic benefits

Preventive Maintenance and Work Orders

- Simple and document
- Filters, sifters, strainers, lubricants, magnets and metal detectors



People, Equipment and Training

- Proper people doing the proper job with the proper equipment and documented training
- \$ driven but be careful how you phrase message to employees (motivation)
- Corner cutting (chemical=> \$ savings)
- Language and color blind barriers

Management Systems for Product Safety

- Organization
- Vendor Specifications
- QC Programs/Lab Access/Sampling
- Receiving Programs
- Preventive Maintenance/Equipment Specifications
- Employee Training
- Preventive Cleaning
- IPM programs
- Management Self-Inspection Program
- Consumer Complaint/Recall Program
- HACCP

Organization



- Clearly defined charts
- Clear lines of responsibilities/Accountability
- Trained Staff
- Open Communication
- Team Effort

“If you want 100% safety, you have to stop eating....”



Dr. Marion Nestle

Professor of Nutrition

New York University

A Food Manufacturer Should....

- Monitor ingredient quality
- Keep an inventory of ingredients/additives
- Comply with regulatory standards
- Coordinate delivery fleets
- Institute preventive maintenance programs
- Be computer literate
- Manage and motivate people
- Keep abreast of technology and the changing consumer
- It is not an easy task!



Thank You