# Integrated Pest Management and Fumigation Safety Training

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# Maintaining quality of food aid commodities upon arrival

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# As part of the supply chain…..

All food manufacturing, processing, packing, and holding must be conducted under such conditions and controls as are necessary to minimize the potential for the growth of microorganisms, allergen cross-contact, contamination of food, and deterioration of food.

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# Shipping containers

Totes, drums, and tubs and bulk vehicles used to distribute human food must be examined prior to use to protect against contamination of the human food.

# Receiving facility

A facility that is subject to subpart C [Hazard Analysis and Risk-based Preventive Controls] and subpart G [Supply-Chain Program] of this part and that manufactures/processes a raw material or ingredient that it receives from a supplier.

# Warehousing and distribution

Storage and transportation of food must be under conditions that will protect against allergen cross-contact and against biological, chemical (including radiological), and physical contamination of food, as well as against deterioration of the food and the container.

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# Onboard equipment for monitoring food aid commodities

- Eyes
- Ears
- Hands
- Nose
- Mouth
- Mind/Notepad
- Feet

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# Auxiliary equipment for monitoring food aid commodities

- Pen and pencil
- Tablet/Notebook
- Inspection forms
- Flashlight
- UV light
- Magnifying Glass
- Thermometer
- Hair nets
- Gloves
- Aprons
- Watch
- Camera
- Copies of Laws & Regulations
- Microbiological Sample Kits

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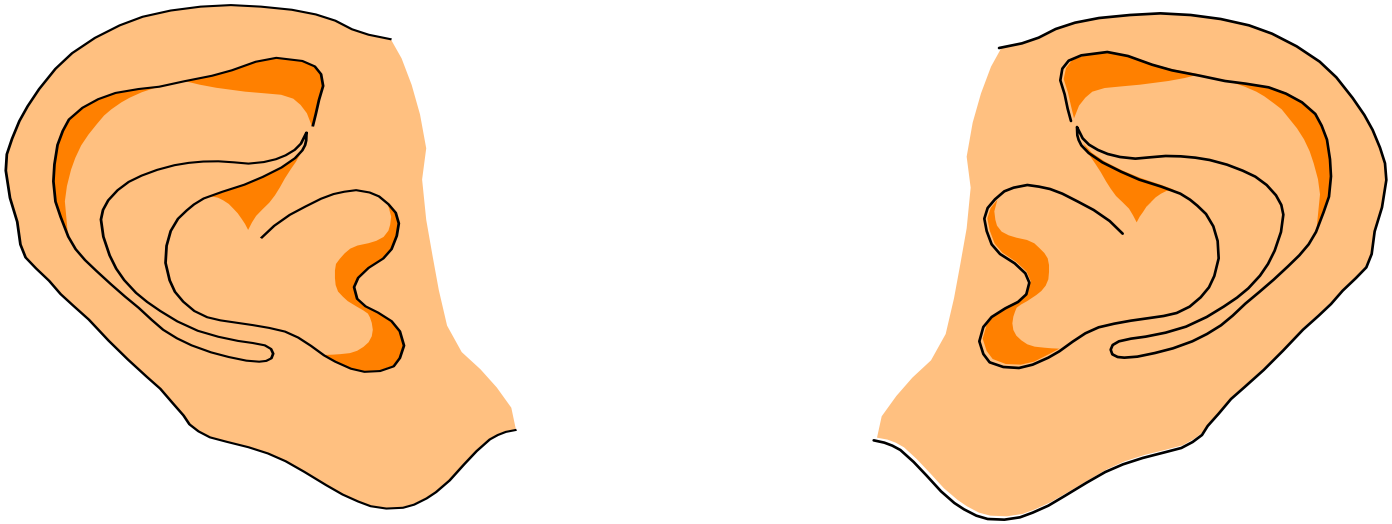
# Eyes

- To see what is going on!!

# Ears to Hear With

- These should be very big!



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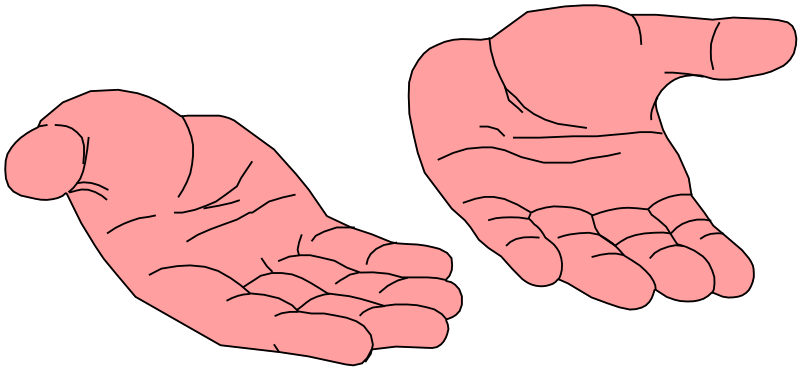
# Hands

- Touch
- Shake
- Encourage



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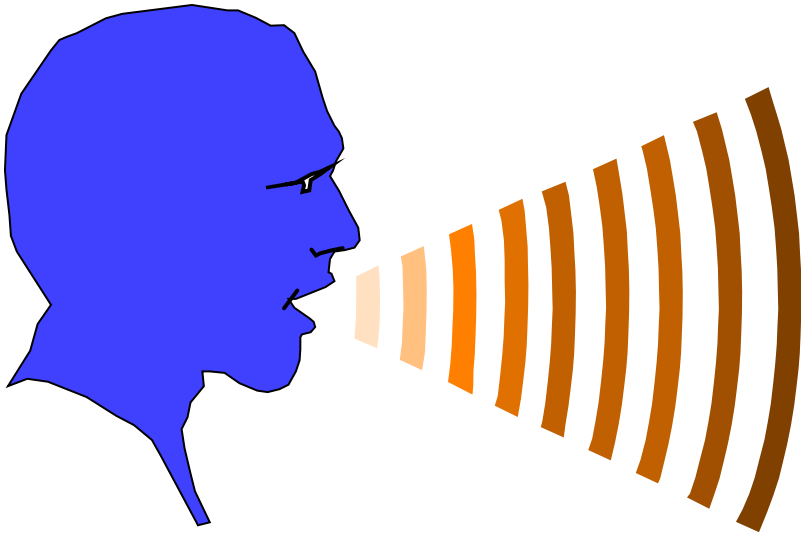
# Nose

- Smell the coffee
- What can you smell in the  container or warehouse?

# Mouth

- Share expectations
- Offer encouragement
- Provide guidance
- Teach



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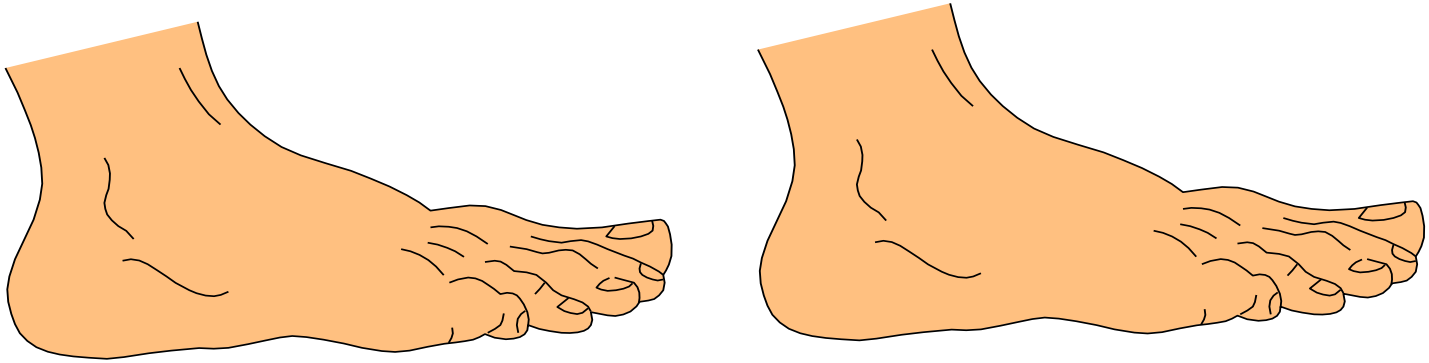
# Mind

- Write it down!
- Think about it!

# Feet

- Makes the commodities storage specialist or site manager a mobile unit



# Sanitation

- Insects
- Rodents
- Birds
- Traps
- Spills
- Weeds
- Trash
- Windows
- Screens
- Doors
- Overheads
- Roof
- Dust
- Brooms
- Vacuum
- Dustpans
- Trash Containers
- Control Materials

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# Safety

- Guards
- Covers
- Lockout
- Magnets
- Re-bolt
- Bin Entry
- Doors
- Clean-up
- Lighting
- Ladders
- Welding
- Gloves
- Shoes
- Fall protection
- Eye Protection
- Dust Masks/Respirators
- Heat & Motion Sensors
- Hearing protection
- Warning horns
- Warning lights
- Fire extinguishers

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# Productivity measures

- Unloading vs. Invoice
- Inventory Loss
  - Theft
  - Damage
  - Out of condition
- Reclaim
- Stock Rotations
- Shipping Loss Claims

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# Quality

- Specifications
- Traceability
- Data Recording
- Readable Data
- Accuracy
- Timing

# Maintenance

- Tool Storage
- Trash
- Noise
- Heat
- Smell
- Grease
- Oil Leaks
- Air Leaks
- Dust Leaks
- Water Leaks
- Exposed Wire
- Freight Elevator
- Bearings
- Drives
- Motors

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# Personnel-training and cultural differences

- Appearance
- Attention
- Activity
- Attitude

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# Outside

- Visual Image
- Sanitation
- Safety

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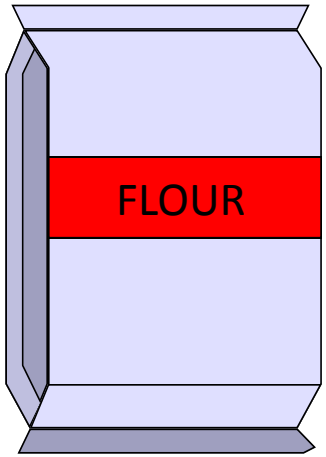
# Warehouse

- Package Weights
- Package Seal
- Date Codes
- Packaging Storage
- Finished Goods
- Inventory Rotation
- Inspection of Carrier




Monitoring, third party inspection?

# Thank you for your participation and work!

Discussion and Question?

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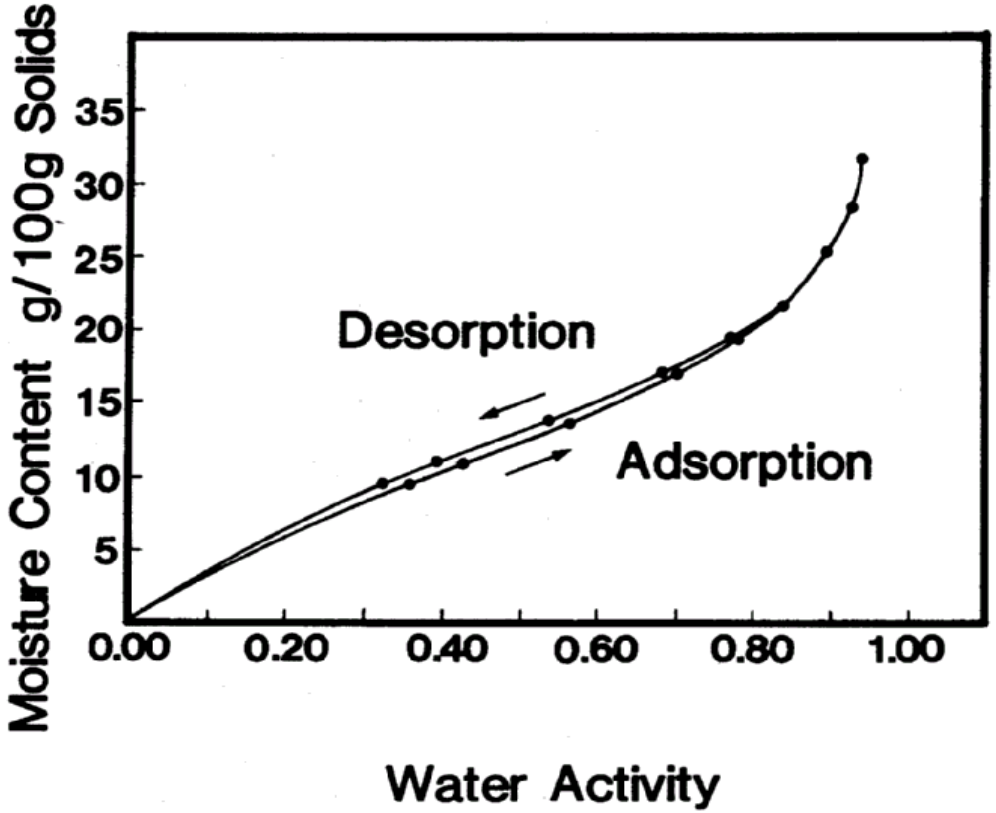
# Wheat Isotherm



# Humidity

| | Degree Change to Reach Dew Point °C | | | | | | |
|---|---|---|---|---|---|---|---|
| Dry Bulb | Relative Humidity % | | | | | | |
| **° C** | **90** | **80** | **70** | **60** | **50** | **40** | **30** |
| **37.7** | 1.9 | 4.0 | 6.4 | 9.1 | 12.2 | 15.9 | 20.5 |
| **32.7** | 1.8 | 3.9 | 6.2 | 8.7 | 11.7 | 15.3 | 19.7 |
| **26.7** | 1.8 | 3.8 | 6.0 | 8.4 | 11.3 | 14.7 | 19.0 |
| **21.1** | 1.7 | 3.6 | 5.7 | 8.1 | 10.8 | 14.4 | 18.3 |
| **15.5** | 1.7 | 3.5 | 5.5 | 7.8 | 10.4 | 13.6 | 17.6 |
| **10** | 1.6 | 3.3 | 5.2 | 7.4 | 10.0 | 13.0 | 16.8 |

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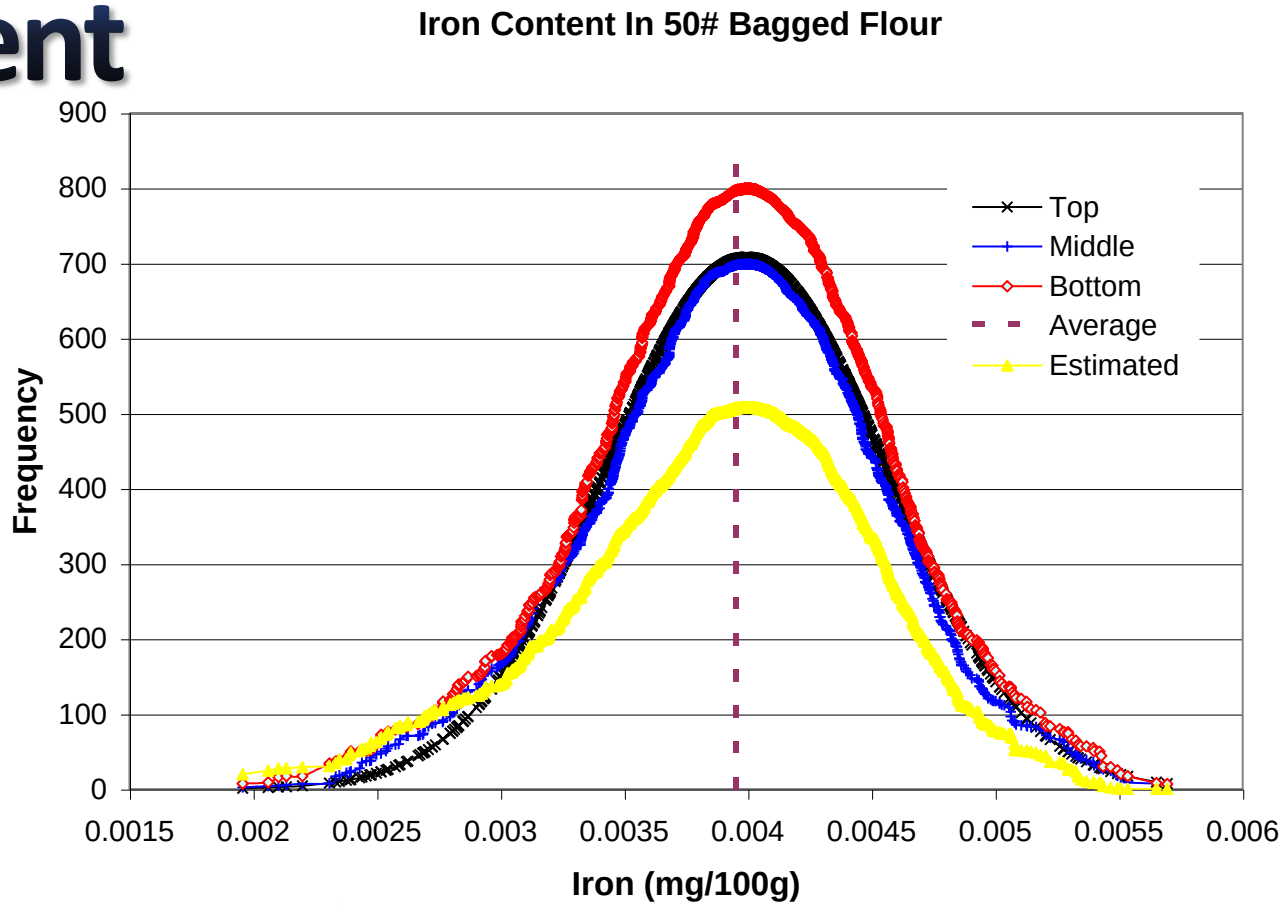
# Pre-shipment

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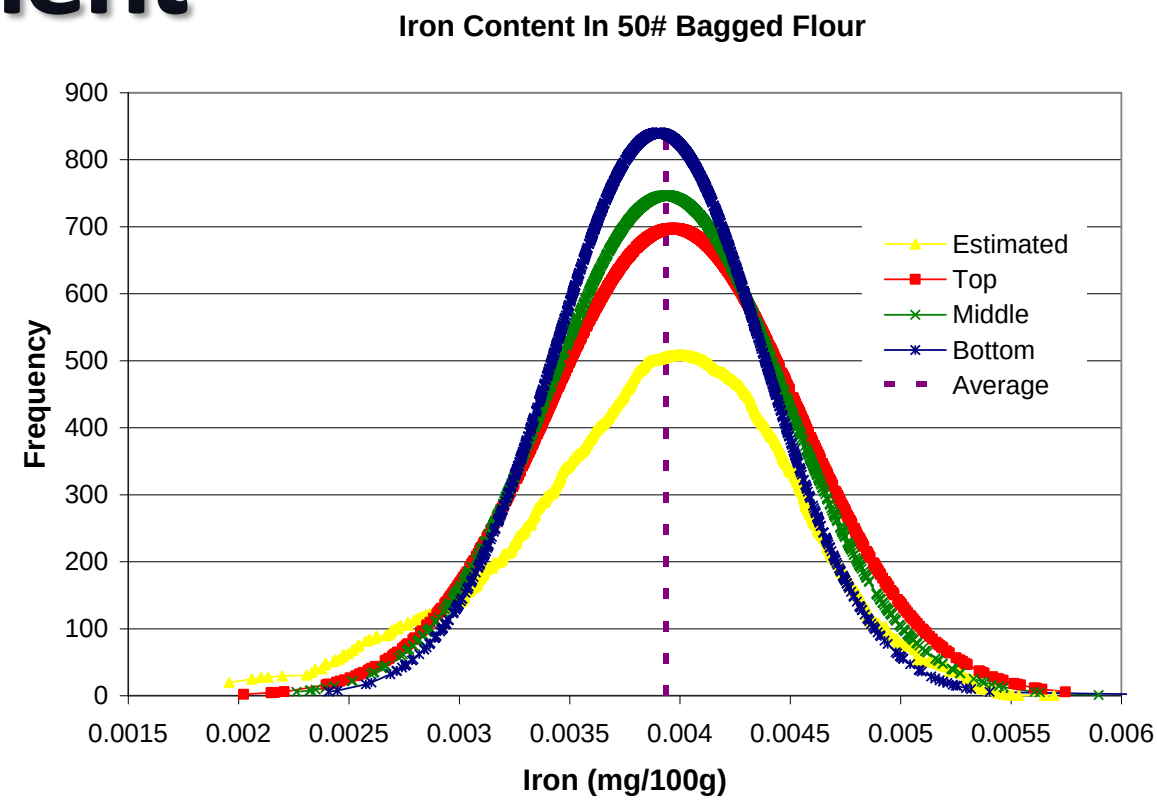
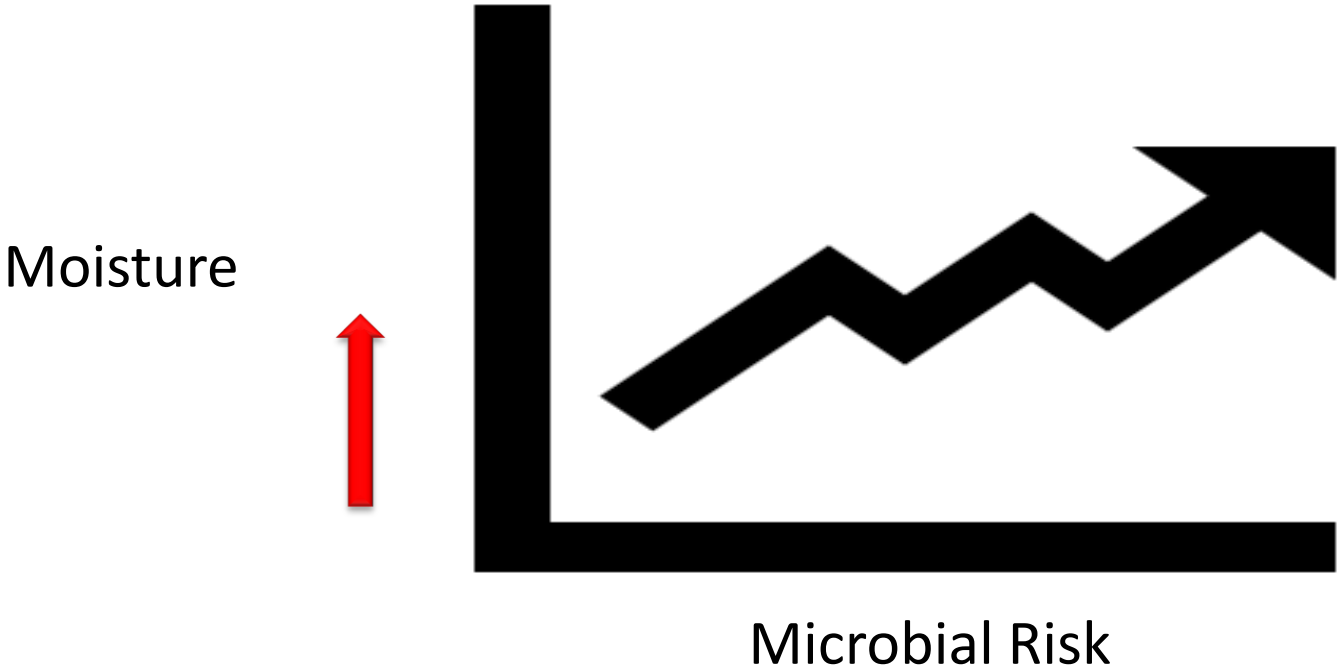
# Post Shipment



# Microbial Risk



# Factors versus quality

Temperature
Moisture, RH
Time

Food Product Nutrient, Flavor, Handling Properties

# Packaging & Labelling Objectives

- Physical protection
- Barrier protection
- Containment or agglomeration
- Information transmission
- Marketing
- Security
- Convenience
- Portion control