

# Significance of Food Quality and Safety issues in India

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**TOTAL LAND → 2 % OF WORLD**

**POPULATION → 17 %**

**ANIMALS → 11.3%**

- **Food grain production 51 to 290 MT**
- **Horticultural production 40 to 315 MT**
- **Milk production 17 to 187.70 MT**
- **Fish production 0.75 to 11 MT**
- **Meat production 7.50 MT (8.5% increase)**
- **Egg production more than 90 billion**



# Consumer awareness about quality and safety of dairy foods: The changing scenario

India has a rich cultural background and the people like to eat home-made foods. Such home made foods are considered more nutritious and safe compared to processed foods.

The food which we eat everyday has tremendous impact on our physical, mental and spiritual health.

Recent world trend and Consumer's preference of processed food with new requirements especially minimally processed / cost effective foods without chemical preservatives and having some kind of enhanced functional and therapeutic features has put up pressure on Dairy Technocrats / Entrepreneurs to adopt all ways and means to ensure quality and safe food to the consumers. These consumer demands are forcing the manufacturer to implement new quality (ISO 9001:2000) and food safety system (HACCP) during various stages of manufacturing.

# **Food Quality and Safety Issues in Dairy Sector**

- **Food borne Illness**
- **Importance of Food Safety felt recently**
- **Consumer awareness catching up**
- **Government gearing up**
- **Fragmented Industry**
- **Majority food processing units in small and unorganized sector**
- **Untrained Food Handlers**
- **Diversity of Food Products**
- **Challenging International Standards**
- **Inadequate Laboratory and Testing Infrastructure**



# Quality ?



- The success of our food industry has been built on the consumers' confidence in the quality of our food products.
- Food manufacturing operations must be able to meet the task every day of producing a high quality product.
- Production of high quality food product is dependent upon maintaining excellent hygienic standards.
- Emphasis on monitoring animal and facility hygiene can help ensure that the food products you produce continues to meet consumer demands

**Quality Control** is a product focused concept, where checking of the actual results are done to ensure that products are as expected.

**Quality Assurance** is a process focused concept, where the processes are put in place to ensure the correct steps are done in the correct way during the operation. If the correct processes are in place there is some assurance that good quality product will be produced as expected.

Quality management is about making organizations perform for their stakeholders – from improving products, services, systems and processes to ensure that the whole organization is fit and effective.

Managing quality means constantly pursuing excellence: making sure that what your organization does is fit for purpose, and not only stays that way, but keeps improving.

*Quality Assurance and Quality Control are two very closely related concepts and because of that close relationship they are often confused and one is inappropriately used as a substitute for the other.*

# Quality Control



## ▶ On the farm

Inspectors monitor herd health, farm water supply, sanitation, food temperature, holding times, bacterial counts

- ▶ Violations of health standards result in heavy penalties up to and including suspension from business
- ▶ Regular inspections required both at the farm and processing plants.
- ▶ Inspectors have full authority to suspend plant operations in order to conduct detailed examinations of all equipment, facilities and products
- ▶ The food industry works hard to ensure that they comply with or exceed all regulations

# Quality Control

- ▶ Numerous test on raw and pasteurized product
- ▶ Microbial organisms are tested for using the standard plate count (SPC) and other test
- ▶ Equipment used to analyze butterfat and solids-not-fat is calibrated on a regular basis to ensure consistency
- ▶ All products have a sell-by date
- ▶ Samples of the products packaged each day are saved to confirm they maintain their freshness after the sell-by date



**Quality Assurance is defined as all the planned and systematic activity implemented within quality system and demonstrated as needed to provide adequate confidence that an entity will fulfill the requirement of quality.**

# Why do we need Food Safety?

Because eating unsafe food leads to food born illness.

Why food becomes unsafe?

- attacked by bacteria or other microbial metabolites / physical / chemical hazards
- Bacteria may be present in products when you purchase them.
- Safely cooked, Ready to eat food can become cross contaminated in kitchen with bacteria transferred from raw products.



## Some of the concern about food safety?

- Consumer awareness on quality and safety of food and changes in their food habits
- Minimal processed foods with natural taste, colour, flavours and shelf life
- Globalization of trade
- Emerging pathogens : with low infective dose , high mortality , resistant to antibiotics and other sanitizers & capability to survive under different environmental conditions/ processes- Potential for large and widespread outbreaks

# Food Safety, Safe Food?

## Food Safety

Concept that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.



## Safe Food

- A product which is free of microbiological, chemical or physical hazards
- OR
- A product that does not cause illness or injury when consumed



## Safely Separate

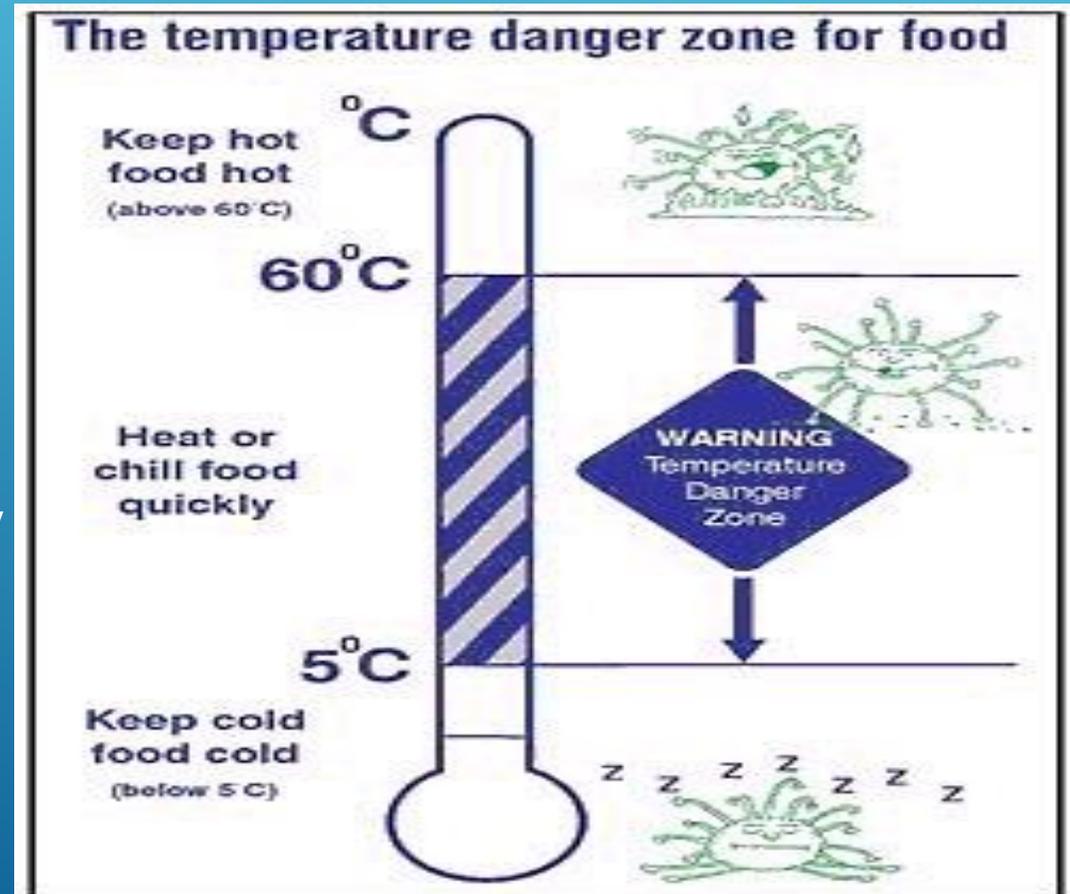
Raw food, meat, poultry, and seafood from other foods in your shopping bag and refrigerator

## Seal it

To prevent juices from raw food, meat, poultry, or seafood from dripping onto other foods in the refrigerator, place these raw foods in sealed containers or plastic bags below other foods

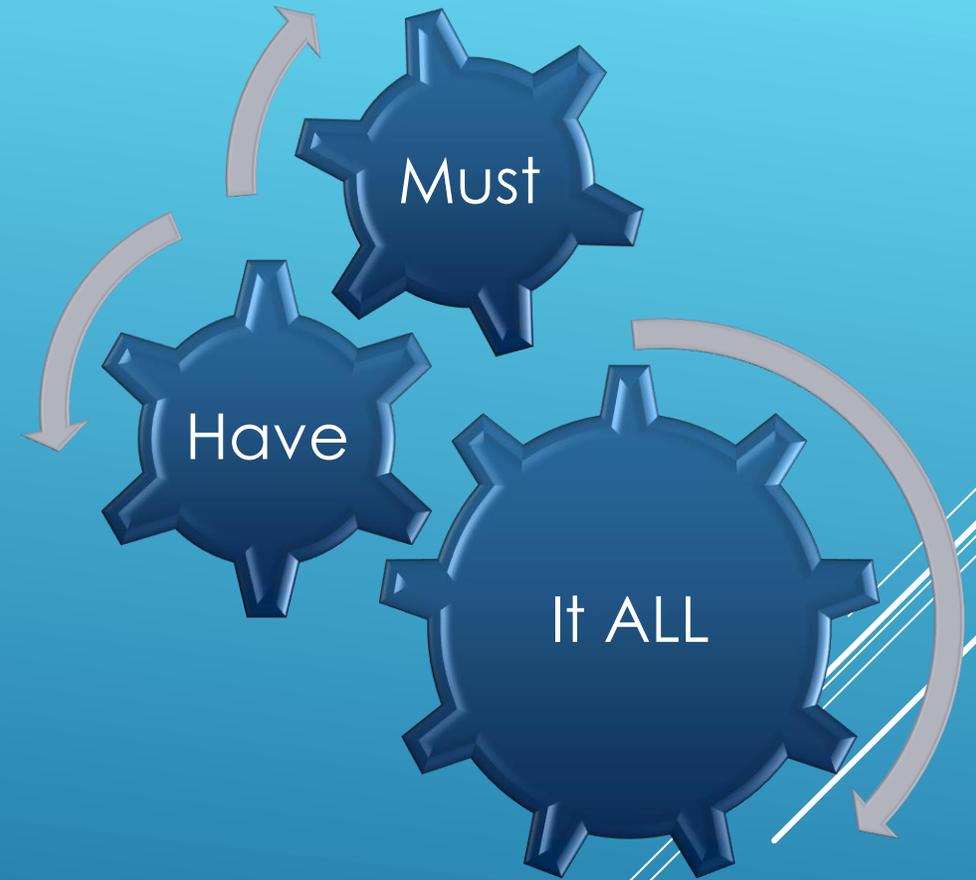
## Chill

- ▶ Refrigerate Promptly and Properly
- ▶ Microorganisms grow more rapidly at warmer temperatures
- ▶ Research shows that keeping a constant refrigerator temperature of  $4.4^{\circ}\text{C}$  or below helps slow growth of these harmful microbes





1. **Safe to Produce –**  
“No injuries to associates”
2. **Safe to Eat –**  
“Consumers don’t get sick”
3. **Within Regulatory Compliance –**  
“Don’t go to jail”
4. **Tastes Good –**  
“Like to eat your own food”
5. **Makes Money –**  
“Pay the bills”



## Current monitoring parameters for assessing the quality and safety of dairy foods



### *Hygiene indicators*

- ✦ Total plate count
- ✦ Coliforms
- ✦ Enterococci
- ✦ Enterobacteriaceae count
- ✦ Yeast & Mold counts
- ✦ Thermoduric count
- ✦ Thermophilic count
- ✦ Spore count
- ✦ Shelf stability test

### *Safety indicators*

#### **Non-microbial contaminants**

- ✦ Drug residues
- ✦ Aflatoxin M 1
- ✦ Pesticide residues
- ✦ Heavy metals

#### **Pathogenic bacteria :**

*Staph. aureus ; Bacillus cereus ; Listeria monocytogenes ; Salmonella /Shigella ; Clostridium perfringens ; Clostridium botulinum; Enterobacter sakazaki ; E.Coli ; Campylobacter jejuni*

*Without your involvement you can't succeed.  
With your involvement you can't fail.*

# Make everyday a Safe Food Day



Have a Great Day

*Rakesh Kumar*