Food Safety Assessment Tools

Dr.V.Sudershan Rao
Asst Director
National Institute of Nutrition
Hyderabad
vemulasr@yahoo.com

Food Defense 4-5th February, 2013, Hyderabad

What is Food Safety ?

It is the degree of confidence that food will not cause sickness or harm to the consumer when it is prepared, served and eaten according to its intended use (FAO/WHO -2003)

Food Safety VS Food Defense

Food Safety –Unintentional contamination by agents reasonably likely to occur in food supply (e.gE.Coli, Salmonella, Listeria etc

May cause many illnesses but few death

Food Defense – Intentional contamination by agents that are not reasonably likely to occur

Has potential to result in many deaths

What Food Safety Means to an Indian ?

The common man in India understands food safety as
" Maintaining personal hygiene, cooking in clean utensils with clean water and serving hot foods "
This is essentially due to the fact that
Semi processed raw materials are purchased from the market and food is essentially prepared at home.

Basic food safety measures are integrated in the cultural habits.

Food Safety - House hold level

Food Safety – Outside foods --

what is our concern ?

1. Food adulteration
2. Pesticide residues
3. Naturally occurring toxins
4. Mycotoxins
5. Microbiological contamination
6. Veterinary drug residues
7. Heavy metals

Key Global Food Safety Concerns

Microbiological hazards

Pesticide residues

Misuse of food additives

Chemical contaminants, including biological toxins

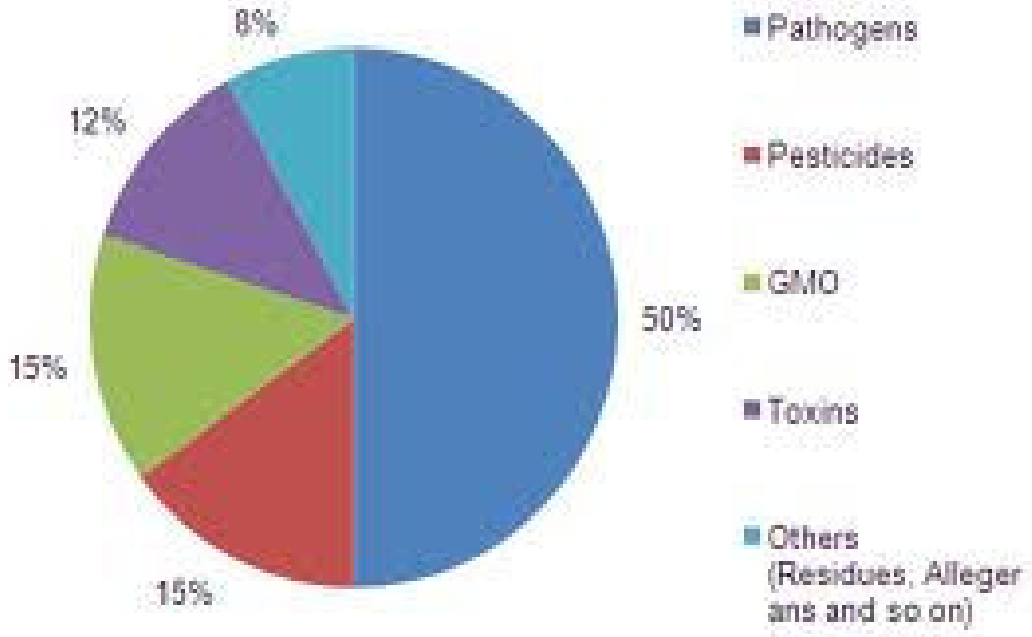
Adulteration

Genetically modified organisms

Allergens

Veterinary drugs residues

Types of analysis carried out for food safety



Food Safety Assessment

Country level - No food borne disease surveillance

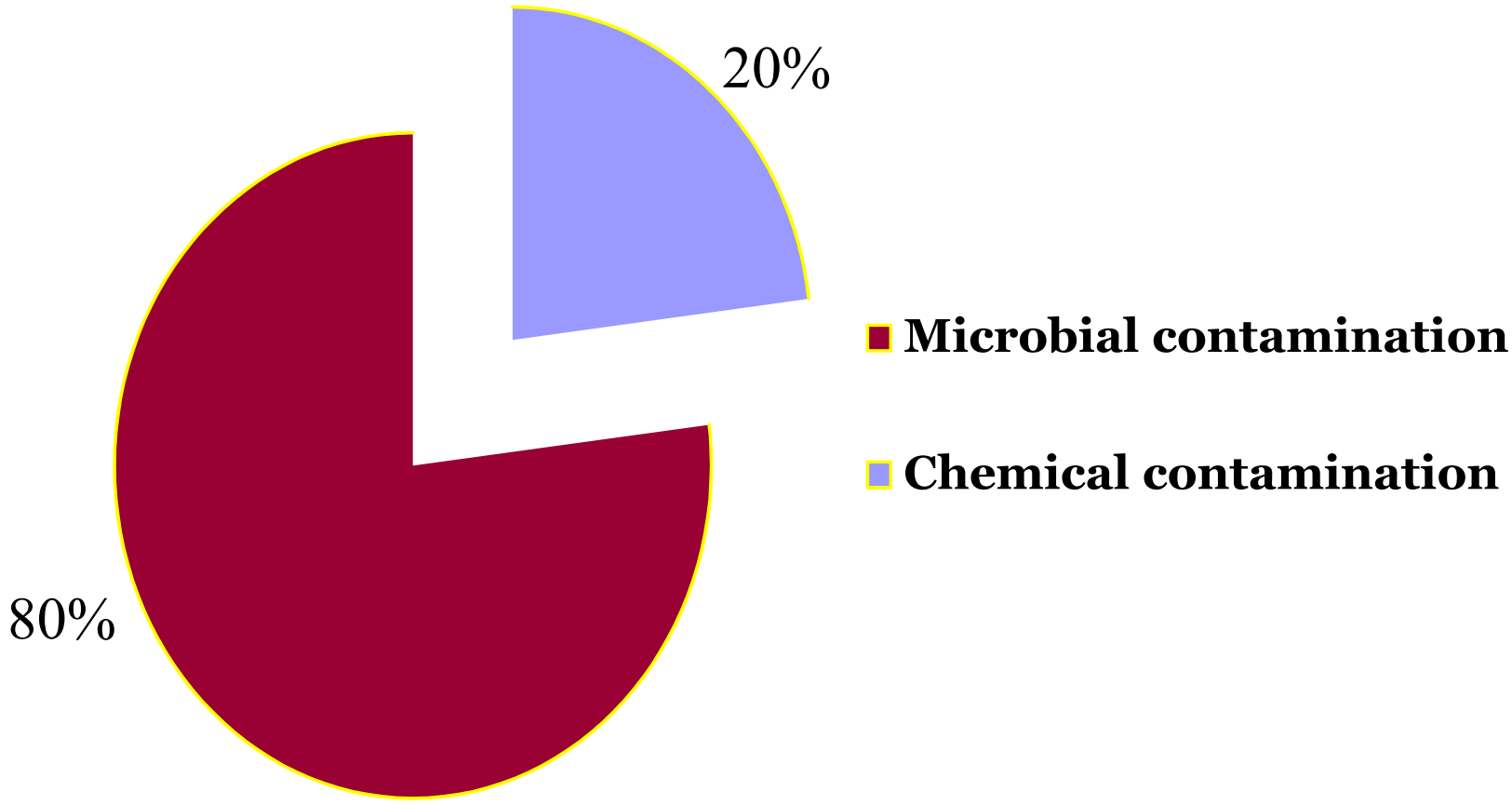
240000 children <5years die due to diarrhea
13.2% House holds reported at least one person is affected in the previous fortnight of survey
3% Villages have reported at least one Food borne disease outbreak in a year

Surveillance of pesticide residues – 3-4% above MRL

Review on Foodborne disease outbreaks in India (1986-2009)

FBD	No.of outbreaks	Affected persons	Place
Epidemic dropsy	2	242	Delhi
Botulism	1	34	Gujarat
Pesticide Poisoning	2	96	Ahmedabad, Delhi
Methaemoglobinaemia	1	86	-
Mycotoxicoses	3	1548	J&K, AP, Karnataka
Na_2No_3	1	22	Hyderabad
Bacterial food poisoning	11	832	Many places
Lead poisoning	1	30	Hyderabad
Excess colour in *Saunf*	1	40	Hyderabad
Phycotoxin	1	132	Mumbai
Rancidity of biscuit	1	125	Hyderabad

Persons affected due to FBDs



Food Business Operator

December, 2012 (US Detentions of Indian food consignments)

Total food consignments	111	
Rejections on account of Pesticide residues	66	(60%)
Salmonella+ Filth	28	(25%)
Others	17	(15%)

HACCP

Recommended Preventive and Control of Food hazards

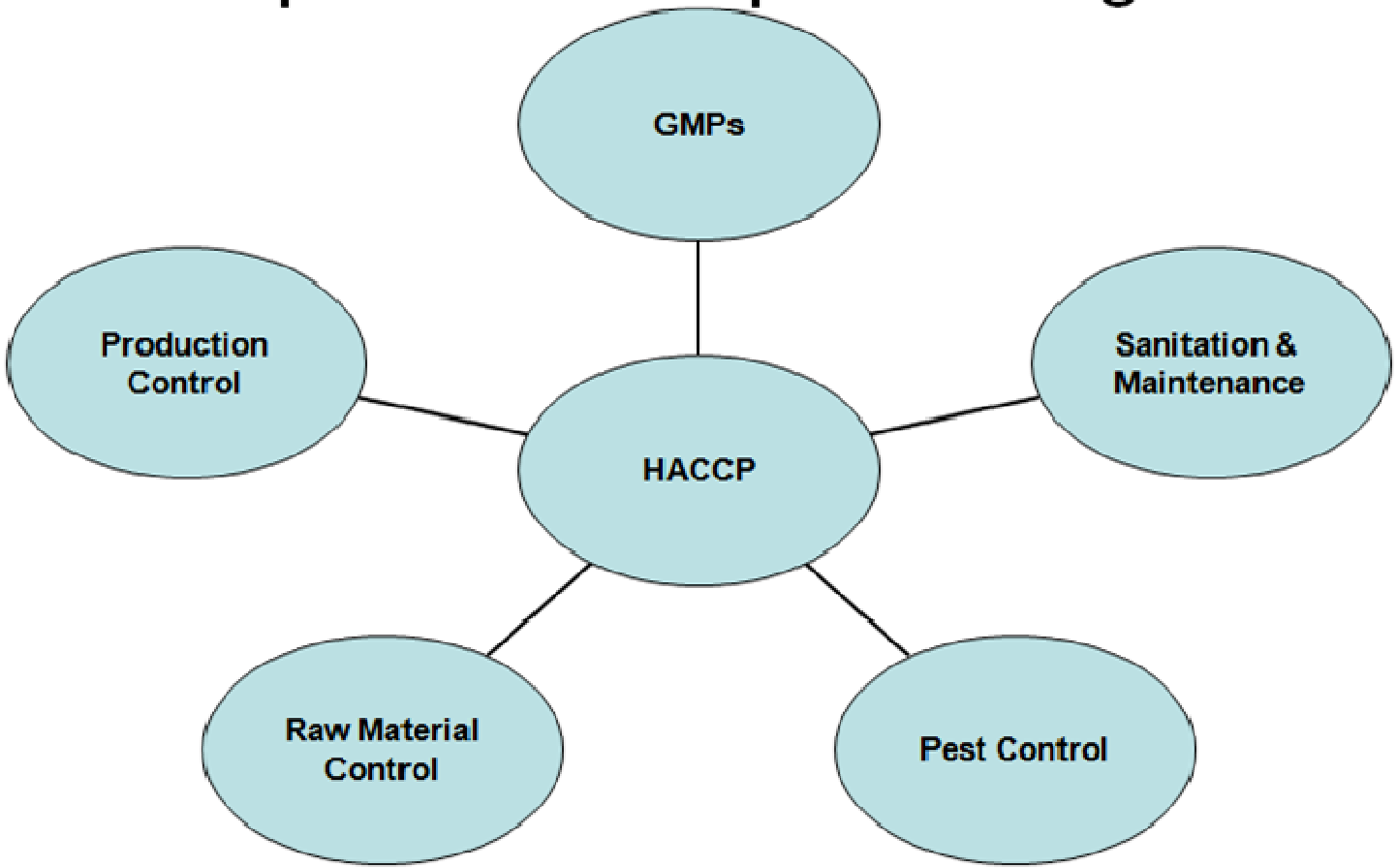
but

Prerequisite programmes provide a foundation for an effective food safety programme

Prerequisites – Practices and conditions needed prior to and during implementation of HACCP

Assessment tools - Prerequisites -Analysis

Examples of Prerequisite Programs

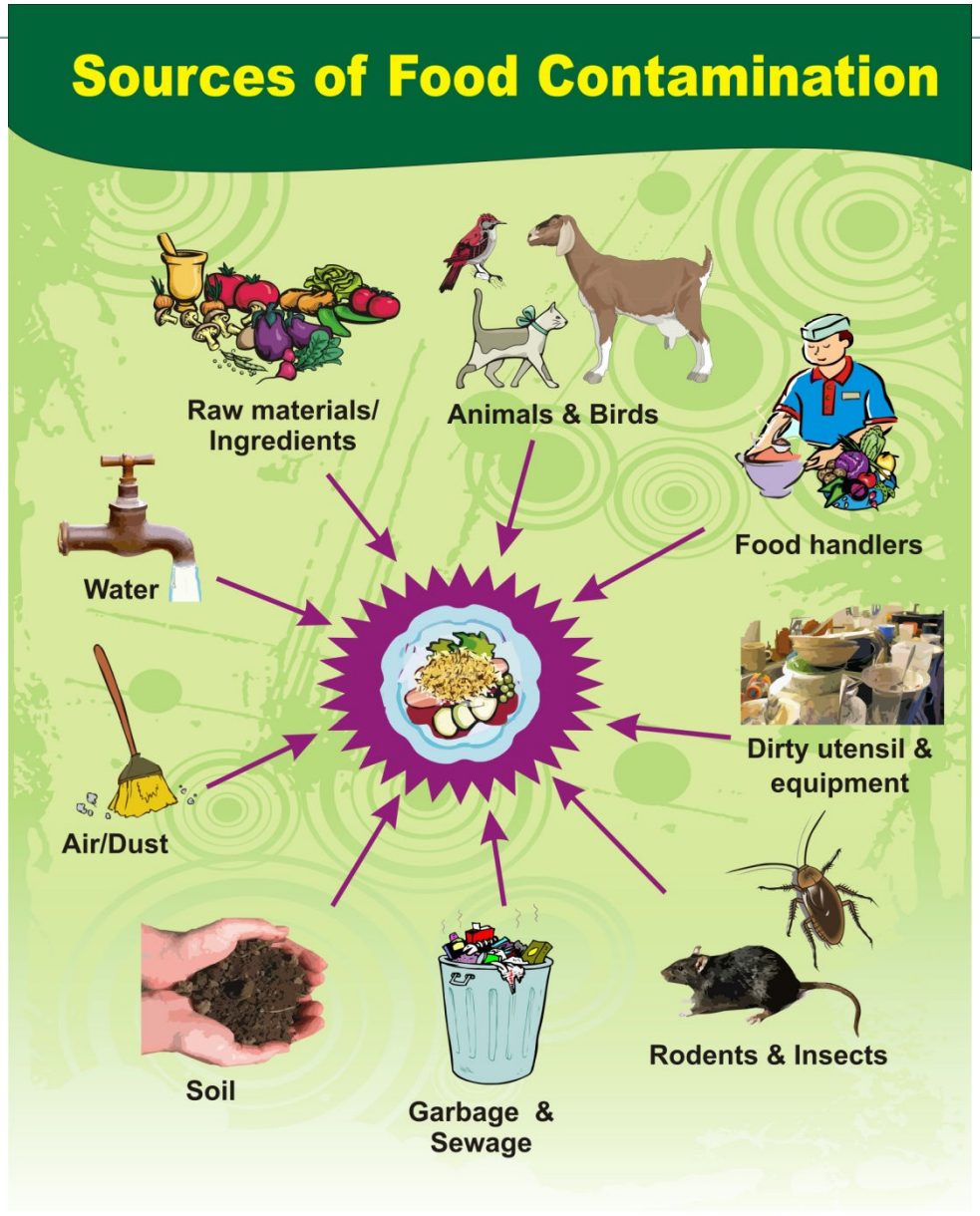


Maintenance, corrective actions , verification (include validation) and Records

Need to understand the Sources of contamination

Lack of knowledge about Microbial contamination

No control on raw material



Pesticide Residues

Lack of MRL in importing countries –

Change of GAP due to pest behaviour

Detection limit as default MRL

Errors in Sampling methods

Filth and Salmonella

Lack of understanding of the sources

Improper sampling procedures

A case of sudan dye in spices

Ink used for writing labels

Not having dedicated mill for grinding the spices

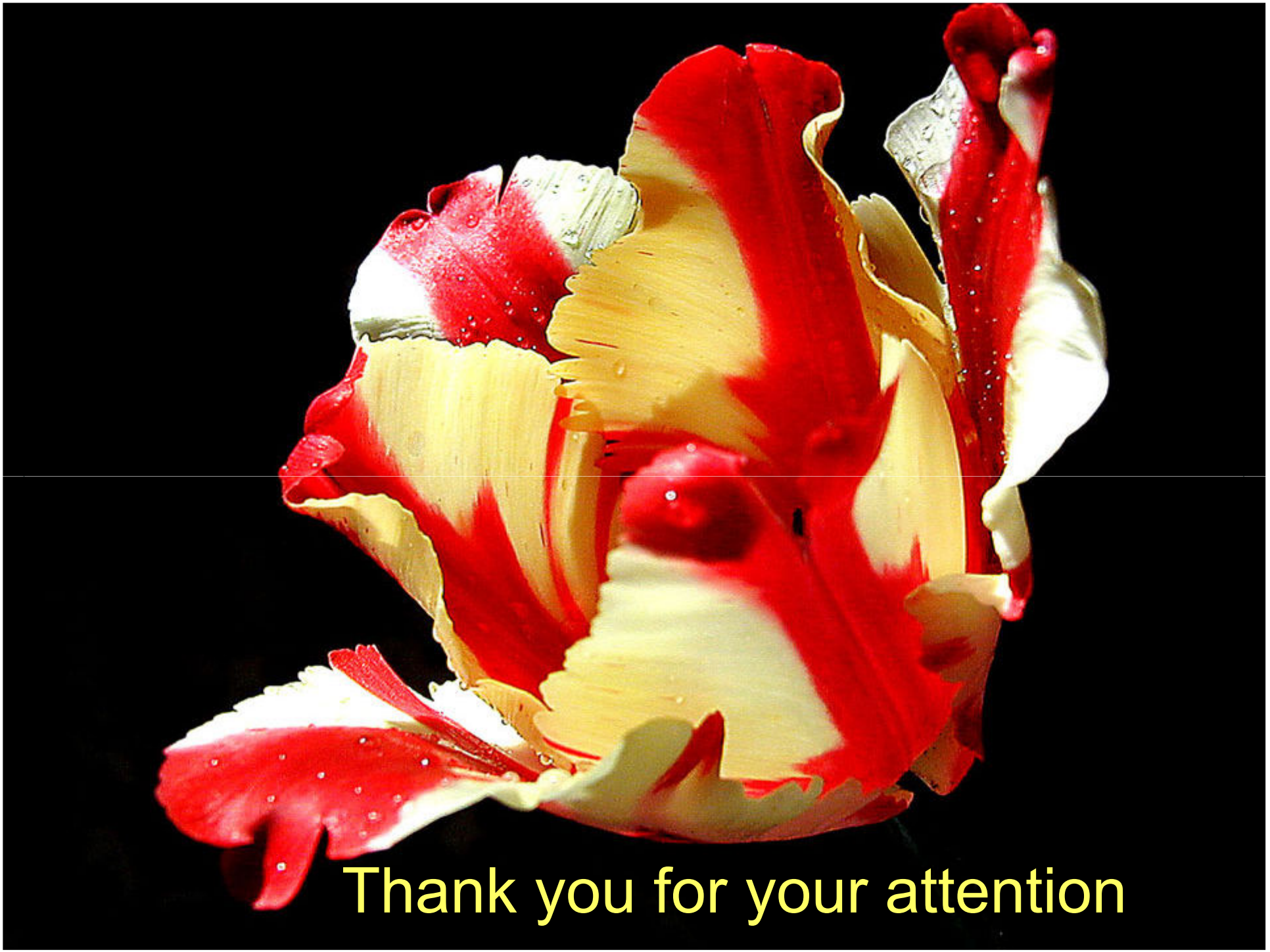
Way forward

1. Establishment of food borne disease

2. Surveillance system for chemical contamination (networking of institutes for surveillance)

3. Total Diet studies at regular intervals

4. Food safety education to food handlers


Thank you for your attention