

Incorporating Risk Analysis Into Food Safety Control System



KFDA
식품의약품안전청

Hae Jung Yoon Ph.D.
(Director, Risk Analysis Research Division)

Contents

1. Introduction
2. Overview of KFDA's Risk Assessment
3. Perspective Risk Assessment

Ingredients from China!!

중국의료 2007년 08월 15일 수요일 A03면 중합

● 6000원(1인분)짜리 김치찌개 백만 원가 비교해보니
중 재료로 만들면 2048원... 국산은 5310원

중국산 재료로 만든다면

김치찌개	3000원(1인분)
김치	1000원(1인분)
김	1000원(1인분)
고춧가루	1000원(1인분)
마늘	1000원(1인분)
대파	1000원(1인분)
양파	1000원(1인분)
계란	1000원(1인분)
소고기	1000원(1인분)
돼지고기	1000원(1인분)
닭고기	1000원(1인분)
물	1000원(1인분)
소금	1000원(1인분)
후춧가루	1000원(1인분)
설탕	1000원(1인분)
식용유	1000원(1인분)
간장	1000원(1인분)
참깨	1000원(1인분)
깨끗이 씻은 김	1000원(1인분)
총합	10000원(1인분)

국산 재료로 만든다면

김치찌개	2000원(1인분)
김치	1000원(1인분)
김	1000원(1인분)
고춧가루	1000원(1인분)
마늘	1000원(1인분)
대파	1000원(1인분)
양파	1000원(1인분)
계란	1000원(1인분)
소고기	1000원(1인분)
돼지고기	1000원(1인분)
닭고기	1000원(1인분)
물	1000원(1인분)
소금	1000원(1인분)
후춧가루	1000원(1인분)
설탕	1000원(1인분)
식용유	1000원(1인분)
간장	1000원(1인분)
참깨	1000원(1인분)
깨끗이 씻은 김	1000원(1인분)
총합	5310원(1인분)

중합가 2048원 **중합가 5310원**

COST?

Increasing Consumer Demands for Food Safety

['멜라민 파동' 후폭풍] ② 불신의 늪에 빠진 식품업계


Consumer Distrust, Anger



Environments

Overwhelming Belief for food safety

Rapid expansion on food business



An ever-present Food related incidents

Increasing Risk on new technology

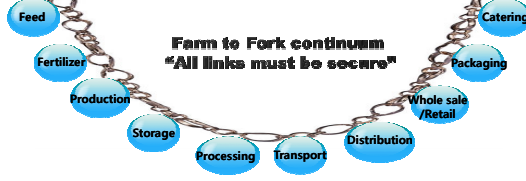
Food Control System in KFDA

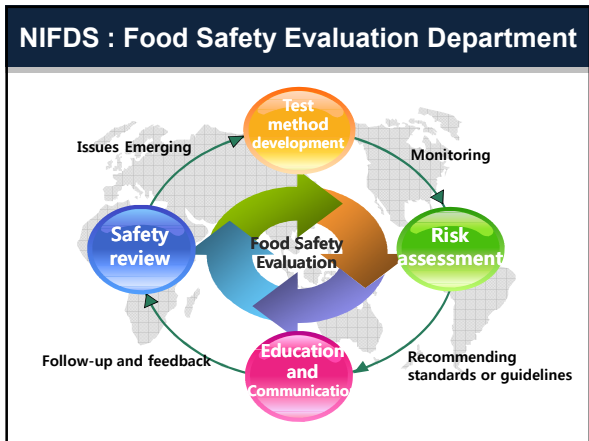
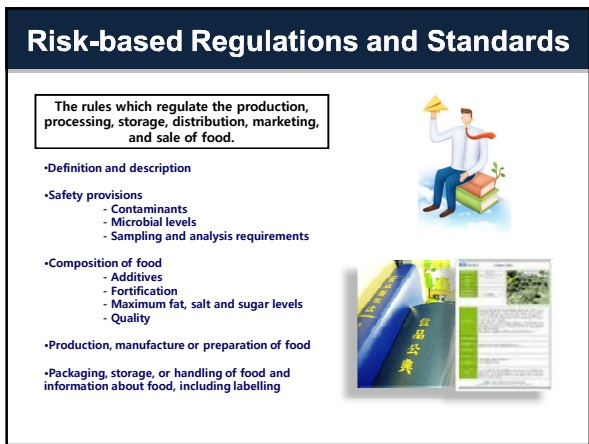
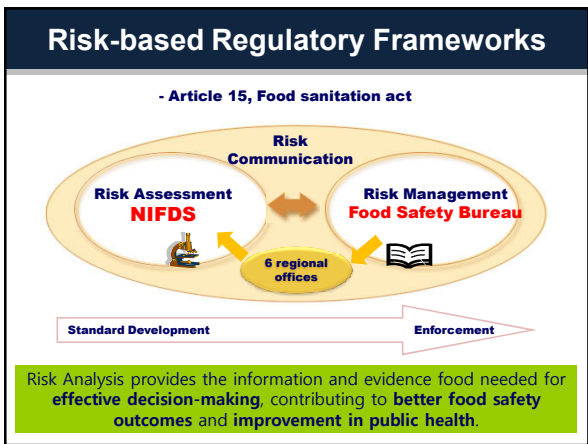
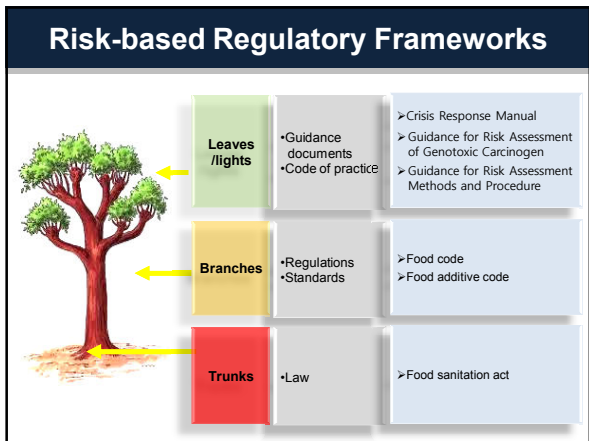
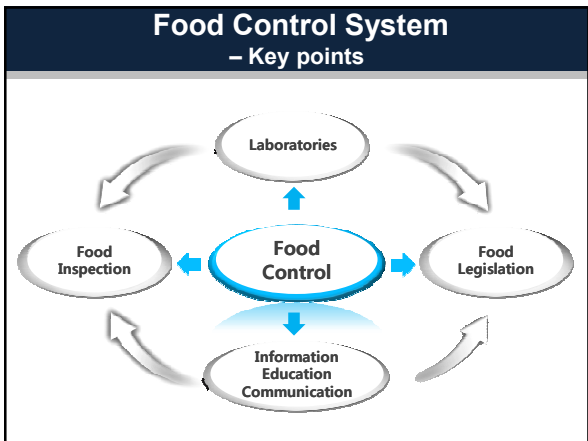
Objectives

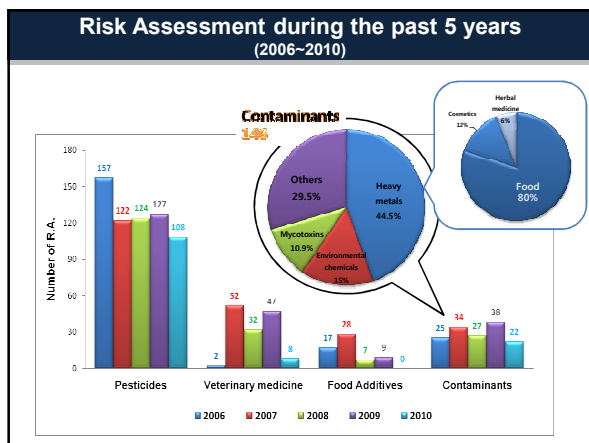
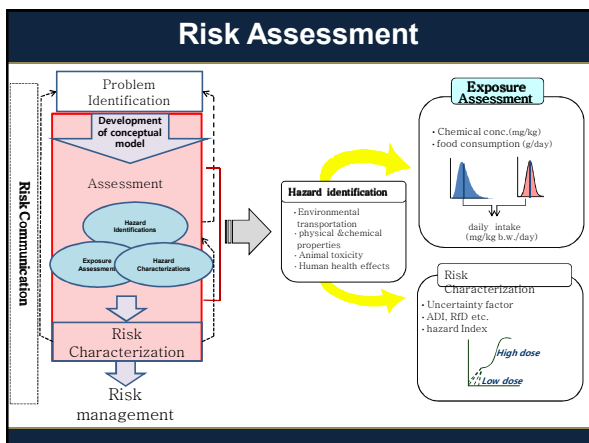
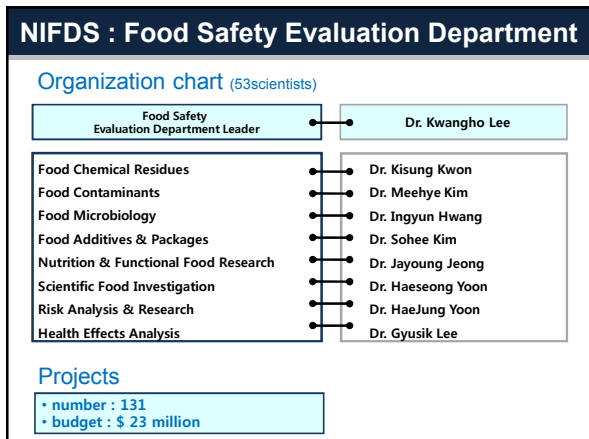
1. Protect Consumer's Health - Prevent fraud/avoid food adulteration
2. Protect Consumer's Interests
3. Underpin Food trade

Farm to Fork continuum

"All links must be secure"



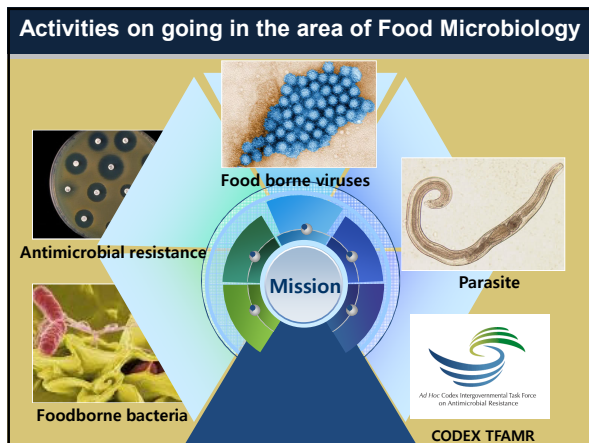




Activities on going in the area of Chemicals in Food

R.A based on data that represent human typical Life!

- Establishing analytical methods for
 - Pesticides, Vet. Drug, and Food additives upon setting MRLs or Use levels
 - non-approved agri. chemical residues,
 - contaminants (mycotoxins, environmental hazardous substances)
 - migrants from food packaging materials
- Residues monitoring in Foods
 - Pesticides, Vet Drug, contaminants, migrants
- Survey on dietary intake of
 - Food additives by Korean population : tar colorant, preservatives, anti-oxidants
 - Total Diet Study (pesticides, contaminants)



Other Activities

- ❖ The standardization and specification of ginseng-derived products
- ❖ Reduction of trans fat, sugar and sodium contents in processed foods
- ❖ Establishment of the detection methods for the GM events approval requested
 - soybean(A5547-127,A2704-12,MON89788), corn(MON87460,DAS-40278-9, Bt10), cotton(COT67B, T304-40×GHB119)
- ❖ Study on human bio monitoring of hazardous substances
 - Perfluorocarbonylates, PBDEs(polybrominated diphenyl ethers), Phthalates, Bisphenol A
- ❖ Improving risk assessment methodology
- ❖ Harmonization of Scientific Evidences
 - Developing Guideline/Handbook/Manual

Where KFDA's RA is Going: Perspectives in Risk Assessment

Food + Health Functional Food + Herbal Medicine +?

Cadmium monitoring from various media

7-12 years 13-19 years 20-64 years Upper 65 years

Identify Exposure route /sources?
Survey on high risk group?
Combined exposure?

Providing Regulatory information! Science-based Smart Regulation

Decision making tool : Chemical Ranking and Scoring

1st
• Cadmium
• Lead
• Arsenic
• Mercury

2nd
• Benzopyrene
• Phthalates
• Aflatoxins
• Dioxins
• Chromate
• PCBs
• Copper
• PAHs
• Formaldehyde
• Acryl amide

3rd
• Tar dye
• Aluminum
• Ochratoxins
• Methyl mercury
• Manganese
• Nitrates/Nitrites
• Benzene
• Sulfur dioxide
• Bisphenol A
• Fumonisin
• Ethyl carbamate

Relative ranking for chemicals is assigned to determine which chemicals need immediate research or monitoring

R. A. Paradigm Shifted : measuring Exposure

focus on Media

Food Monitoring /Surveillance

focus on Receptor

Total Diet Studies

➔

Integrated Exposure Survey

➔ Reality

Provide more coherent inputs to the decision-making process

Aggregated exposure Assessment

Cereals
Vegetables
Animal foods
Other food /Beverages
Herbal medicines
Functional foods
Medicines
Cosmetics

Forward dosimetry approaches

External exposure ↔ Internal exposure

Reverse dosimetry approaches (modeling, tool kits)

Epidemiological studies

Bio monitoring

Setting the HbGVs of Cadmium, Lead

comparative analysis of external exposure and internal exposure

KFDA Project(2011)

Hazardous substances and Disease

Low-dose chemical exposure to general population in everyday life recognized as new hazard

FDA Workshop (2011.01)

Major groups of hazardous substances

- Heavy metals (As, Pb, Cd, Hg...)
- man-made chemicals (POPs, Bisphenol A, Phthalates...)

Chronic disease

- Alzheimer
- Child obesity
- insulin resistance diabetes
- ...

Examine correlations between hazardous chemical exposures and Demographic characteristics, dietary habits, health condition, etc

Provide a specific measure tailored to meet individual disease control

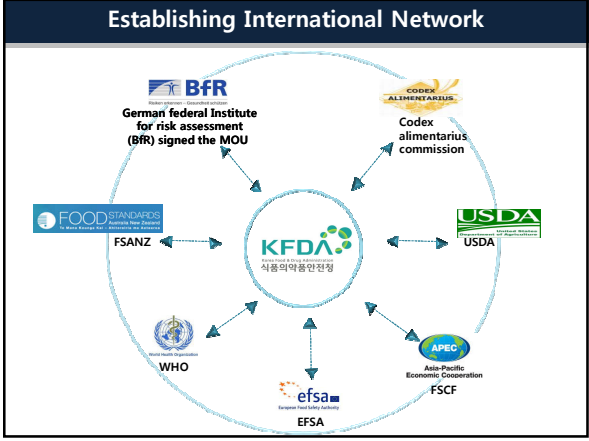
Collection program of hazardous substances monitoring DB (MIMS; Monitoring Information Management System)

Korean dietary exposure assessment system of hazardous substances (MAP; Monitoring database and Assessment Program)

R&D Strategies for Risk Management of Nanoparticles in Foods, Cosmetics, and Drug		11	12	13	14	15	16
Risk management	<p>Development of Strategies for Safety Management in Nanoproduct lifecycle</p> <ul style="list-style-type: none"> - Assess the appropriateness of risk assessment methodologies - Develop Methods to determine and characterize nanoparticles in foods, cosmetics, and drugs - Develop Strategies for Exposure Assessment of nanoparticles according to use of nanoproduct - Assess & Manage potential public health risk that may be associated with the nanoproduct 	→	→	→	→	→	→
Toxicological assessment	<p>Establishment of International toxicology test guideline(OECD)</p> <p>Development of Toxicological basic methodology & toxic mechanism</p>	→	→	→	→	→	→
General information for risk assessment	<p>Hazard characterization of nanoparticles</p> <ul style="list-style-type: none"> - Identify Physicochemical properties of nanoparticles - Interagency working group for terminology & definition related to nanotechnology - Establish Data Base - Market survey for nanoproducts developed using nanotechnologies 	→	→	→	→	→	→
International Cooperation & Risk communication	<p>Development of International Collaboration Program</p> <p>Strengthen Cooperation between regulatory agencies for protection of public health from use of nanoproducts</p> <p>Establishment of Risk Communication for nanoproducts</p>	→	→	→	→	→	→

Developing Contents for Risk Communication

For smart phone application



Thank you!