APPENDIX 17

Food Control System – Key points

Risk-based Regulatory Frameworks

Risk-based Regulations and Standards

NIFDS: Food Safety Evaluation Department

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Organization chart (50 scientists)

<table>
<thead>
<tr>
<th>Department</th>
<th>Leader</th>
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<tbody>
<tr>
<td>Food Safety Evaluation Department Leader</td>
<td>Dr. Kwangho Lee</td>
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<tr>
<td>Food Chemical Residues</td>
<td>Dr. Kyoung Kim</td>
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<td>Food Contaminants</td>
<td>Dr. Mebhy Kim</td>
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<tr>
<td>Food Microbiology</td>
<td>Dr. Ingyun Hwang</td>
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<tr>
<td>Food Additives &amp; Packages</td>
<td>Dr. Suhee Kim</td>
</tr>
<tr>
<td>Nutrition &amp; Functional Food Research</td>
<td>Dr. Jayoung Jwong</td>
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<tr>
<td>Scientific Food Investigation</td>
<td>Dr. Haeyoung Yoon</td>
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<tr>
<td>Risk Analysis &amp; Research</td>
<td>Dr. Guyuk Lee</td>
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<tr>
<td>Health Effects Analysis</td>
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Projects
- number: 133
- budget: $23 million

Objectives of Risk Assessment

- Establishing Standards
  - appropriate protection level (food contaminants et al.)
- Maximize reduction in risks through evaluating RMO
- Priority setting
  - Implementing policies and providing management plans.
- Reducing risk perception differences through risk communication

Risk Assessment

Risk Assessment during the past 5 years (2006~2010)

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)

Activities on going in the area of Food Microbiology
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
- Study on human bio monitoring of hazardous substances
  - Perfluorocarboxylates, PBDEs (polybrominated diphenyl ether), 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

<table>
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<tr>
<th>7±12 years</th>
<th>13±18 years</th>
<th>20±4 years</th>
<th>Upper 65 years</th>
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</table>

- 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
- Benzene
- Lead
- Manganese
- Arsenic
- PBBs
- PAHs
- Organochlorine
- Furan
- Chlorobenzene
- Toluene
- Ethyl carbonate

3rd
- Tet dye
- Aluminum
- Chlorine
- Nickel
- Cadmium
- Copper
- Manganese
- Chromium
- Silver
- Iron
- Zinc
-

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

R. A. Paradigm Shifted : measuring Exposure

- Focus on Media
- Focus on Receptor

Food Monitoring/ Surveillance
Total Diet Studies
Integrated Exposure Survey

Reality

Provide more coherent inputs to the decision-making process

Aggregated exposure Assessment

Forward dosimetry approaches
External exposure
Internal exposure
Bio monitoring
Reverse dosimetry approaches (modeling, test kits)

Setting the HbGvS of Cadmium, Lead

Comparative analysis of external exposure and internal exposure

KFDA Project(2011)
Demographic characteristics, dietary habits, health condition, etc.

Provide a specific measure tailored to meet individual disease control.

R&D Strategies for Risk Management of Nanoparticles in Foods, Cosmetics, and Drug

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<tr>
<td>Development of Strategies for Safety Management in Nanoparticle Lifecycle</td>
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<tr>
<td>Hazard characterization of nanoparticles</td>
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<td>Development of Toxicological test guideline (EDC)</td>
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<tr>
<td>Development of Toxicological basic methodology &amp; toxic mechanism</td>
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Developing Contents for Risk Communication

For smart phone application

Thank you!