China’s Food Safety System in The Year of The Rooster

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I. Food Safety System and Law
II. Food Safety Standards/Risk Assessment
III. Requirement for Food Industries
IV. Challenges
National Food Safety System

State Council
Food Safety Commission (FSC)

- MOA: Primary Agricultural Products, animal slaughtering
- CFDA + Office: Food Production, Distribution, Consumption, Standards
- NHFPC: Risk Surveillance, Assessment, Standards
- AQSIQ: Import and Export
- CFSA
- CDC: Science & Technical Supports, Standard development, risk assessment, risk communication
US Government Structure

US Constitution

Legislative Branch
Congress

Executive Branch
President

Judicial Branch
Courts

Homeland Security
Agriculture
Labor
State
Transportation

Commerce
Defense
Justice

Education
Energy

FDA—Center for Food Safety & Applied Nutrition (CFSAN)

Veteran’s Affairs
Attorney General

Food Safety Inspection Service (FSIS)

FDA

CDC

EPA

Interior

Justice

Energy

Housing & Urban Development

Education

Violence Against Women Office (VAWO)
FOOD SAFETY LAW

Issued by the National People’s Congress, Feb. 28, 2009

Revised by the National People’s Congress, April 24, 2015, implemented on Oct. 1, 2015

* China Agri-Product Quality and Safety Law: Nov. 1, 2006. MOA.
Overall Concepts and Principles

- Preventive Control
- Risk Based Management
- Whole Process Control
- Social governance
2015 Food Safety Law

- Chapter 1: General Provisions
- Chapter 2: Risk Monitoring and Assessment of Food Safety
- Chapter 3: Food Safety Standards
- Chapter 4: Food Production and Distribution
  - Section 1: General Rules
  - Section 2: Process Control of Production and Distribution
  - Section 3: Labels, Descriptions, and Advertisements
  - Section 4: Special Food
- Chapter 5: Food Inspection
- Chapter 6: Food Import and Export
- Chapter 7: Settlement of Food Safety Incidents
- Chapter 8: Supervision and Administration
- Chapter 9: Legal Liabilities
- Chapter 10: Supplementary Provisions
Agenda

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China National Center for Food Safety Risk Assessment

Established on Oct. 13, 2011

1. 2009, National Food Safety Risk Assessment Expert Committee
2. 2010, National Food Safety Standards Review Committee
3. 2014, National Food Safety Expert Committee
4. Since 2000, Conduct the National FS Surveillance Network
National Food Safety Standards

General
- 食品中污染物限量
- 食品中致病菌限量
- 食品中真菌毒素限量
- 食品添加剂使用
- 营养强化剂使用
- 食品中农药残留限量
- 食品中兽药残留限量
- 预包装食品标签标准

Food/FA & Related
- 食品原料及产品
- 谷物及其制品、乳与乳制品、蛋与蛋制品、水产品及其制品等
- 营养与特殊膳食类食品
- 婴儿配方食品、特殊医学用途配方食品等
- 食品添加剂
- 琼脂（琼胶）、二丁基羟基甲苯（BHT）等
- 食品相关产品
- 不锈钢制品、消毒剂、有机硅防粘涂料等

GMP/GHP
- 食品生产卫生规范
- 乳制品、饮料等食品生产规范
- 食品添加剂生产卫生规范
- 食品相关产品生产卫生规范
- 食品经营卫生规范
- 餐饮操作卫生规范
- 危害因素控制指南

Testing Methods
- 理化方法
- 微生物方法
- 毒理学检验方法和评价程序
- 寄生虫检验方法

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Food Microbial Criteria: Pathogens in Foods

GB 29921-2013

- 2014.07.01 implemented
- 11 food categories
- 5 Foodborne Pathogens
  - *Salmonella*
  - *E. coli O157:H7*
  - *Listeria monocytogenes*
  - *Vibrio parahemolyticus*
  - *Staphylococcus aureus*
## Example: Meat Products

<table>
<thead>
<tr>
<th>Foods</th>
<th>Pathogens</th>
<th>Sampling plan &amp; Limits (CFU/25 g or 25 mL)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
<td>c</td>
</tr>
<tr>
<td>Meat products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooked meat</td>
<td>Salmonella</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>RTE raw products</td>
<td><em>Listeria monocytogenes</em></td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>S. aureus</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><em>E. coli</em> O157:H7</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Only for beef products
### GB14881-2013 General Guidelines of Good Hygienic Practice for Food Production
#### Appendix A Food processing control for microbial hazards

<table>
<thead>
<tr>
<th>Environment Monitoring</th>
<th>Sampling Points</th>
<th>Microorganism</th>
<th>Frequency</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food contact surface</td>
<td>Hands, work clothes, Gloves, conveyor belt tools and other contact surfaces</td>
<td>TPC Coliform et al.</td>
<td>After clean weekly, biweekly or monthly</td>
<td></td>
</tr>
<tr>
<td>Adjacent contact surface</td>
<td>outside surface, holder, control panel, parts, cart</td>
<td>TPC Coliform et al. Pathogenic bacteria on occasion</td>
<td>biweekly or monthly</td>
<td>Determine the limitation based on the actual manufacture situation</td>
</tr>
<tr>
<td>Ambient air</td>
<td>Place close to the products</td>
<td>TPC Coliform et al.</td>
<td>weekly, biweekly or monthly</td>
<td></td>
</tr>
<tr>
<td>Processing control</td>
<td>Process products in which microbial level may change and affect the safety and quality</td>
<td>TPC Coliform or other indicators</td>
<td>The first products when opening weekly, biweekly or monthly</td>
<td></td>
</tr>
</tbody>
</table>
National Molecular Tracing Network for Foodborne Disease Surveillance (TraNet)

- **PFGE**: *Pulsed field gel electrophoresis*
- “fingerprints” in center database at CFSA and local CDC
- Real time sharing DNA “fingerprints” maps through internet
- Cluster identification
- Rapid, coordinated detection & response to outbreaks
The isolates from foods and patients were identified as *Salmonella Typhimurium*.
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Requirement for Food Production and Service

Article 33:

3) **Full-time or part-time technical staff, food safety management personnel**, 

4) Have reasonable **equipment layout** … to avoid cross contamination.

6) Use **safe and harmless containers, tools, and equipment** for food storage, transportation, and loading/unloading.

7) Use nontoxic and clean **packaging materials**, tableware, kitchenware and containers for foods for direct consumption

8) Food producers and traders shall maintain **personal hygiene**.

9) **Use water** that complies with the national hygienic standard for drinking water.

10) Use **detergents and sanitizers** that are safe and harmless to human health.
Requirements for Food Production and Service

**Article 42**: Food industries shall establish *food traceability system*.

**Article 44**: The chief principal of food producers and business operators shall implement *enterprise food safety management system* and shall take overall responsibility for their own work of food safety.

**Article 45**: Food industries shall establish employee’s *health record systems*.

**Article 47**: Food industries should have *self-inspection systems*.

**Article 48**: Encourage food industries to meet good manufacturing or trading, catering practices (GMP, GHP), HACCP.

**Article 63**: Food industries shall establish *recall system*. 
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Challenges for Government

- The food safety management systems: lack of good coordination

- Food safety management capability: have less knowledge and experience in food safety, especially industry operations.

- The new food safety law and standards were developed in a short time, it will take long time and huge effort to educate, training, and implement the requirement.

- The conflicts between the rules and practice will occur and requires frequent communications and possibly modifications.
Challenges for Food Industries

- It will take a long time for industry to establish and implement the system, programs required by the new law and following standards.

- It lacks professional food safety personnel to carry out the jobs.

- The role of industry associations is still not well defined. Tough to make an impact representing industry to work with government.
Challenges to Academia

- Academic professionals are focused on theory and research of basic science, not many professors have the practical industry interest and experience.
- Publication is towards the impact factors, not real industry needs.
- Lacking of food safety data makes it difficult to develop food safety hazard control strategy and methodology.
- Education of food safety for students has not been linked with industry. There are big gaps regarding degree and ability.
New Economic Realities
Summary

- Great Progress
- Much confident
- Challenges exit
- Help needed
- Back to foundations: Education
Collaboration
International Organizations in China

More ........
Questions?

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