Building a Safer Future: China's Food Safety System and Global Impact

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The Importance of Food Safety

Food safety in China

CFSA's Role in Chinese Food Safety System

CFSA's Role Globally

Future Outlook

The Importance of Food Safety

Public Health

Ensuring food safety is essential for protecting consumers from foodborne illnesses, which can have severe public health consequences.

Economic Growth

A strong food safety system supports the economy by enabling international trade, securing market access, and fostering consumer confidence in domestic products.

Global Cooperation

Globalization requires standardized food safety regulations to facilitate international trade and ensure the safety of food products across borders.

The Importance of Food Safety

China’ s Vision: To strengthen domestic food safety systems, ensuring healthier and more sustainable trade practices.

China’ s Role in Global Trade: As a major food exporter, China faces unique challenges in ensuring food safety. Strengthening its food safety system is critical for global trade and to maintain the trust of both domestic and international consumers.

Food Safety in China

China’ s Food Safety System: Key Upgrade

Food Safety Law: The enactment of the Food Safety Law established a unified system for food safety regulation, emphasizing traceability, testing, and consumer protection.

China National Center for Food Safety Risk Assessment (CFSA): The CFSA conducts food safety risk assessments and provides scientific evidence to support national food safety standards and regulatory policies. These efforts aim to ensure a safer food supply chain for both consumers and international trade partners.

Food Safety in China

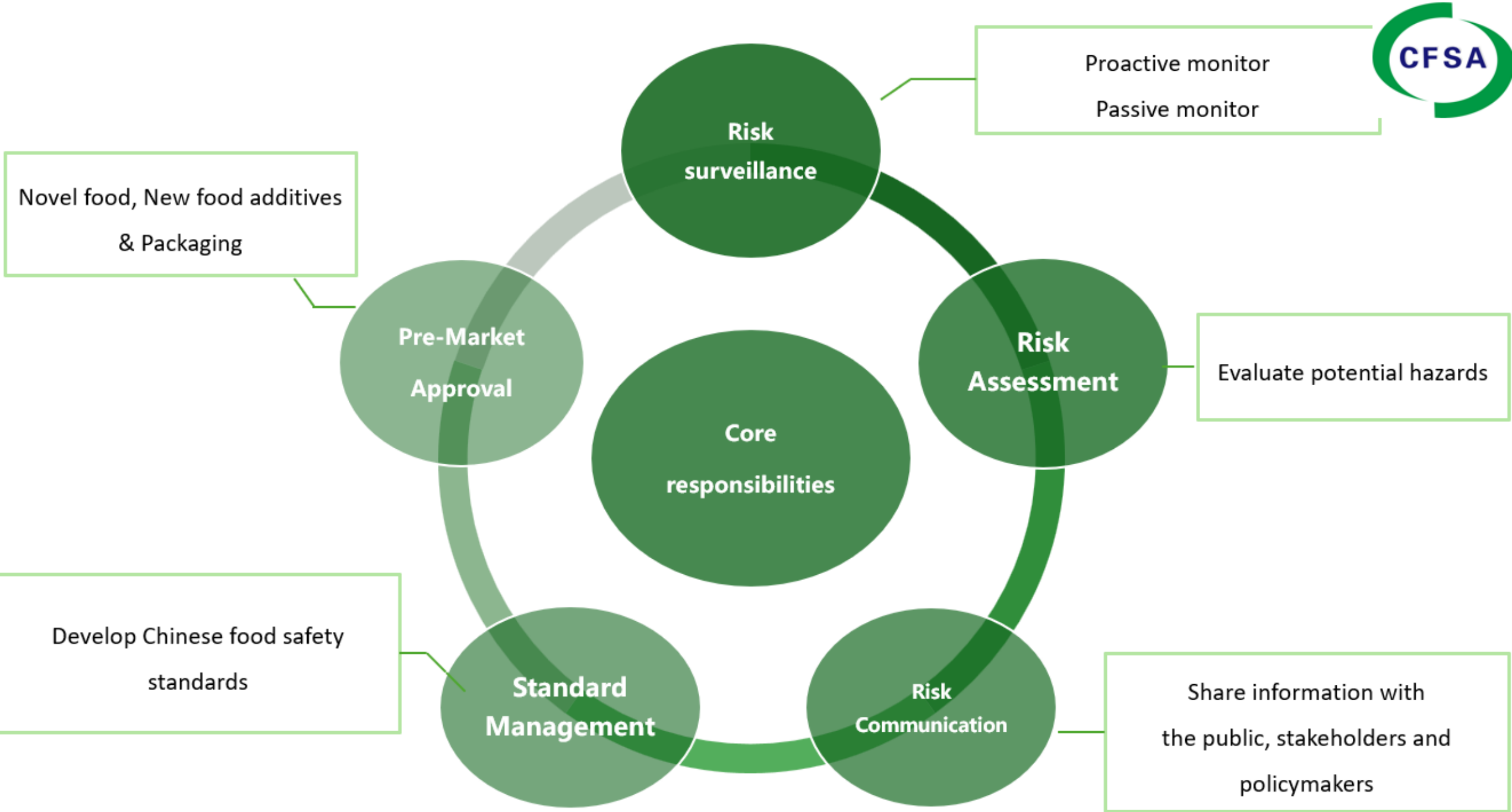
Food Safety Regulatory Framework in China

CFSA's Role in Chinese Food Safety System

CFSA was established in **2012** in response to China's growing need for **scientific risk assessments** in food safety.

Created under the **National Health Commission** (formerly the Ministry of Health), CFSA's mission is to enhance China's food safety system through **evidence-based research** and risk assessments.

CFSA is the first and only national-level dedicated center in China focused on conducting **scientific risk assessments** for food safety, playing a critical role in strengthening the food safety system.


Risk surveillance
Proactive monitor
Passive monitor
Risk Assessment
Evaluate potential hazards
Risk Communication
Share information with the public, stakeholders and policymakers
Standard Management
Develop Chinese food safety standards
Pre-Market Approval
Novel food, New food additives & Packaging
Core responsibilities

Risk Surveillance System

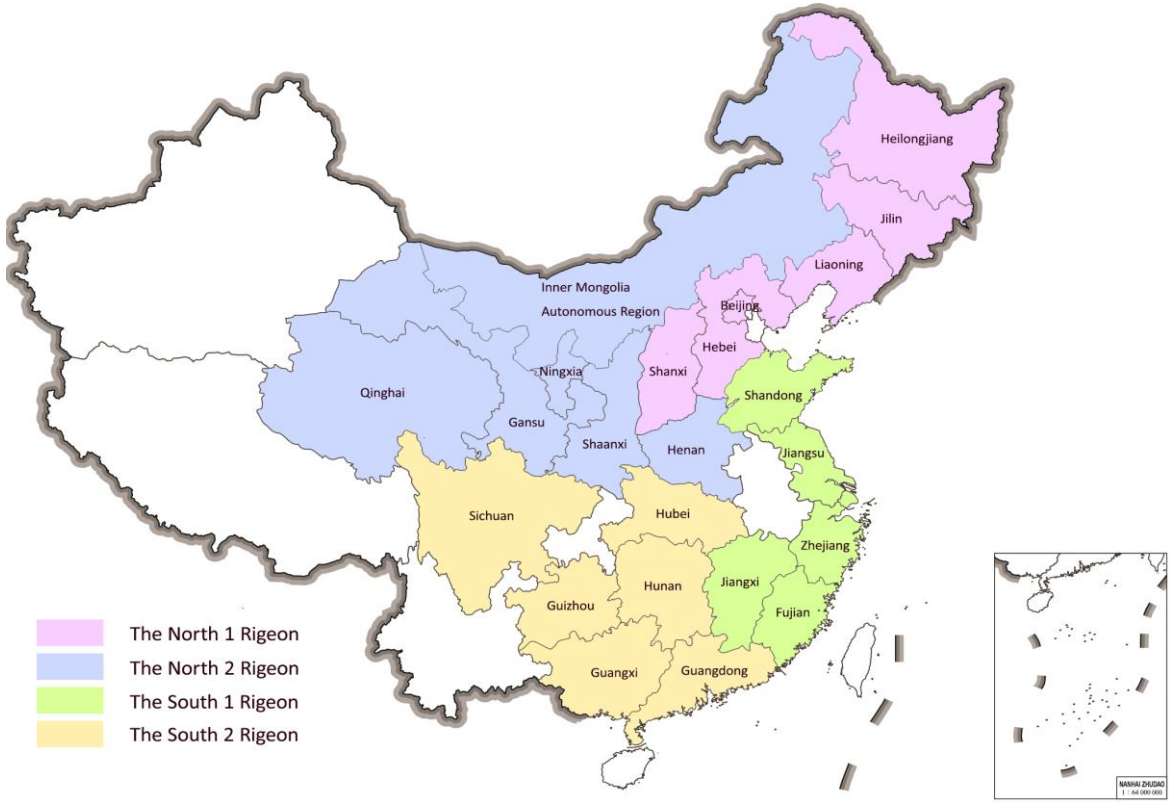
- 5 surveillance network around the whole country

- Both Chemical and Microbiological contaminants in foods were included.
- Foodborne Diseases surveillance system were developed to collect data on foodborne disease outbreaks, clinical cases.
- A traceability network of foodborne diseases was built based on Bioinformatics techniques.

Over 1600 indicators, **30 million** data; covering **70,000** health facilities, **3,000** CDCs.

Total Diet Study

Total Diet Study, TDS: A method to study and estimate the intake of various dietary chemical components (contaminants, nutrients) by a population through representative diets (including drinking water) in cooked/processed, ready-to-eat forms. It is the most cost-effective method for dietary exposure assessment.



China TDS Food Categories

1. Cereals and products
2. Legumes and products
3. Tubers and products
4. Meat and products;
5. Eggs and products;
6. Aquatic products and products;
7. Milk and products;
8. Vegetables and products
9. Fruits and products
10. Sugars
11. Beverages and Water
12. Alcoholic beverages
13. Condiments and Cooking Oils

Study on dietary exposures and health risks

- Study on exposure pathways, body burden and dietary exposure assessment and their health risks of typical persistent organic pollutants (POPs)

- Study on the correlation between mycotoxin exposure and health effects based on accurate detection method and identification method for unknown or masked mycotoxins

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- The Sixth China TDS was completed to obtain the dietary exposure results of POPs, mycotoxins, veterinary drugs, pesticides, harmful elements and other contaminants from processing

- Study on food chemical hazard factors and their metabolites, and building a high-resolution mass spectrometric screening database

- Develop food matrix reference materials, and carry out international comparison and capability verification

Microbiological Risk Control

- Data collection(Microbiological contaminates surveillance system)

- **Viruses, Bacteria,** and **Fungi** have been included as targets for monitoring, along with **antimicrobial resistance**.

- Risk assessment

- National risk assessment reports about important foodborne pathogens (more than 20 items) were published。.

- Standard published

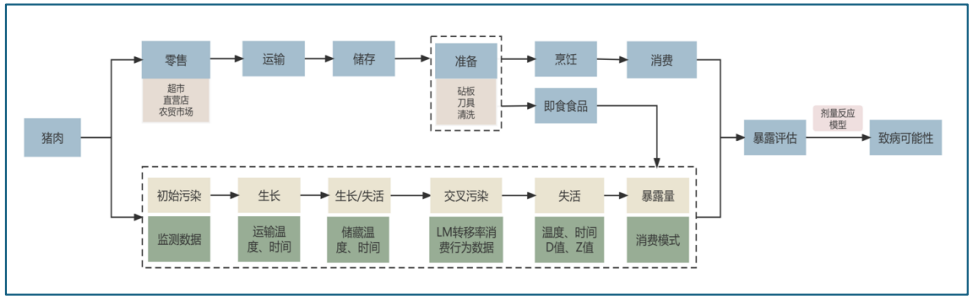
- National standard of “Limits of Pathogenic Microorganisms in Prepackaged Foods”, and “General Hygiene Practices for Food Production” were published.

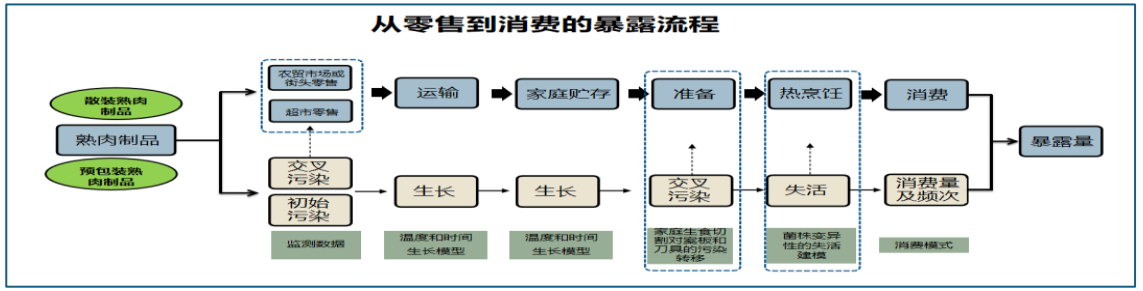
Microbiological Risk Control

-Quantitative risk assessment of *Listeria monocytogenes*

- Conducted the quantitative risk assessment of *Listeria monocytogenes* in fresh pork, cooked meat products, fermented meat products, and ready-to-eat/raw salmon.

- Developed Risk assessment Model: the transmission model of Listeria from retail market to consumers.





Microbiological Risk Control

-Quantitative risk assessment of *Listeria monocytogenes*

➢ Risk assessment

- The contaminated data of the foods, along with the consumption data and the exposure model we developed, were used to conduct a risk assessment. A risk assessment report was then generated.

➢ Recommendations and Food safety standard

- Based on the risk assessment results, rrecommendations were provided for the government, retail sellers, and consumers.
- There is still a lack of a unified national standard for the limits of *Listeria monocytogenes* in raw and fermented meat in the publicly available data.

- Raw meat
- Ready-to-eat meat
- Prepackaged ready-to-eat meat
- Ready-to-eat Salmon
- Fermented meat product

Chemical Risk Control

➢ Data collection(Chemical contaminats surveillance system)

- Data of **Eenvironmental pollutants**, **Processing by-products, Biotoxins** and **Food additives** were collected.

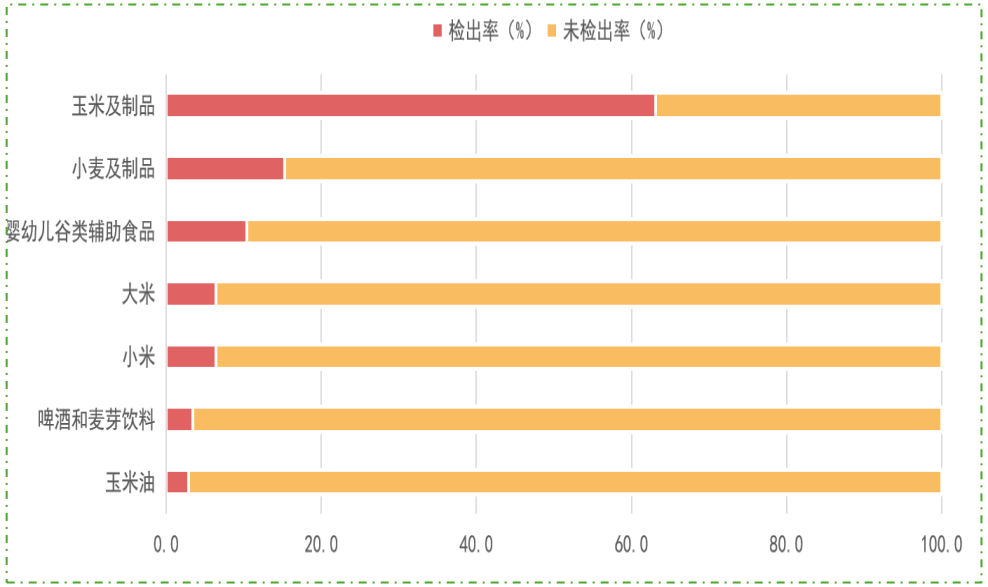
➢ Risk assessment

- **119** risk assessment reports were published. Including Cadmium in rice and complementary foods, dehydroacetic acid in food additives, fumonisins in grains, rare-earth elements in tea, and others.

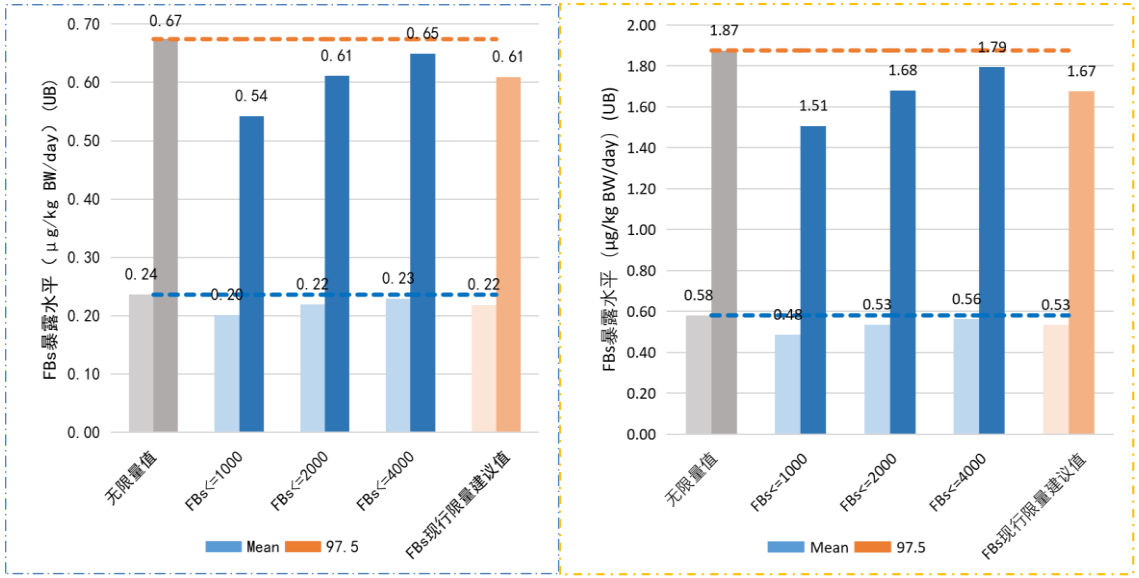
➢ Related Standards

- GB2761 National Food Safety Standard Maximum Levels for Mycotoxins in Foods
- GB2762 National Food Safety Standard Maximum Levels for Contaminants in Foods

Risk Assessment of Dietary Fumonisin Exposure in Chinese Residents



Contamination status of FBs in various monitored food categories



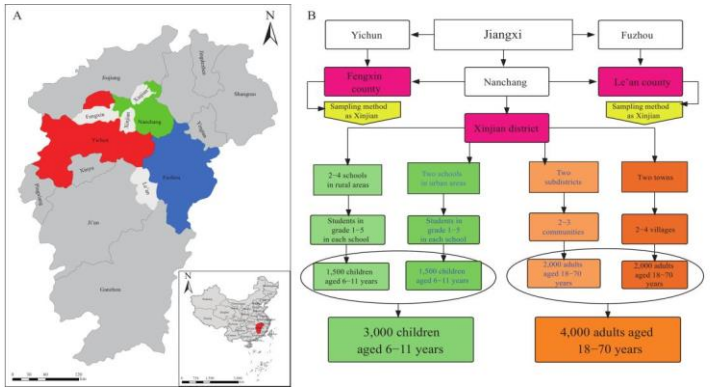
Impact of different proposed MLs on FBs exposure levels in corn-consuming populations

- Comprehensively understood the contamination levels of fumonisins in major food categories in China
- Systematically assessed the health risks of fumonisin exposure from major dietary sources for Chinese residents.The health risk from dietary FBs exposure for the entire population is relatively low. Rice and wheat products are the main food sources of FBs exposure for the entire population, accounting for about 80% of total exposure. Corn and its products account for 15~26%.
- **Promoted the establishment of MLs for fumonisins in corn and its products (Standard setting)**.

Food Allergens

➢ Data collection

- 2020-2025: Data from 4 cities were collected. Over **16,000** people involved.
- The food allergens in these individuals included **Shrimp, Soybean, Crab, Milk, Eggs, etc.**



➢ Standard published

- National Food Safety Standard “General Requirements for Prepackaged Food Labeling” was published, which stipulates that the eight major types of **Allergens** must be **compulsorily declared** on the label of prepackaged foods.

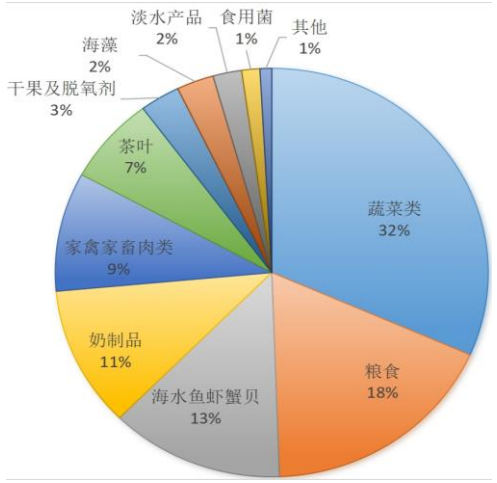
Radioactive Substances

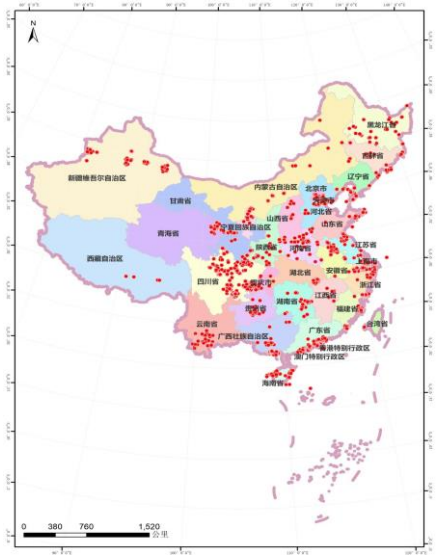
➢ Data collection

- From 2012 to 2024, a total of 13,698 samples were monitored, and 117,796 data collection points were established across China.
- The types of food include beverages, seafood, dried fruits and nuts, fruit juice, dairy products, aquatic food products, processed food, and others.

➢ Suggestions to the government

- We suggest that food safety authorities initiate research projects to assess the radioactive health risks of seafood, improve monitoring and data support, and enhance risk assessment capabilities for future nuclear accidents.





Nutrition

➢ Consumption survey

- A survey system of Chinese residents' food consumption was developed
- Carried in **31** provinces including **500** survey sites.
- Food consumption survey was conducted on various foods, including **infant food**, **the food and medicine continuum, processed foods with added sugars, prepackaged foods** **and others.**
- Over **20 million** data were collected.

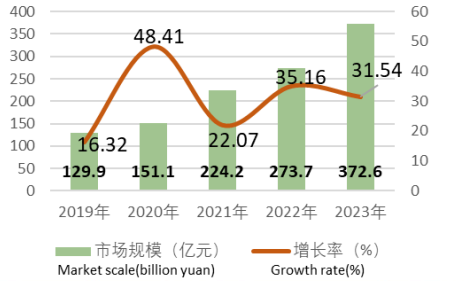
Nutrition

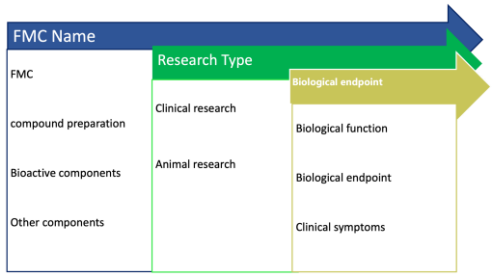
➢ Food used as Chinese Tradational Medicine

- A consumption survey was conducted across 30 provinces, investigating over 200 food and medicine continuum.
- As part of this effort, risk assessments were carried out for 13 substances.
- Health Claim Development:

✓ One key aspect of our ongoing work is exploring the efficacy of these substances, identifying their potential health benefits.

✓ Based on evidence-based medical research, we are also developing health claims to ensure that these substances are properly validated and safe for public consumption.



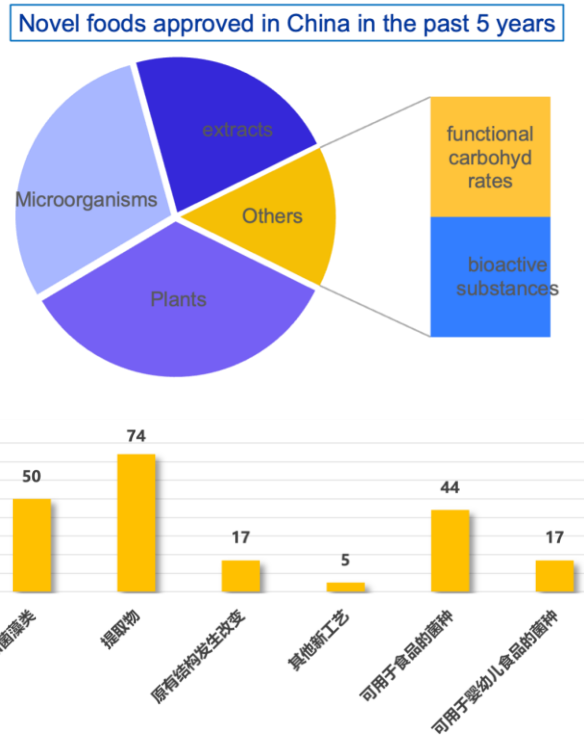


名称 Name	拉丁名 Latin name	使用部位 Parts	用语 Phrase
阿胶 EJiao	Equus asinus L.	干燥皮或鲜皮经煎煮、浓缩制成的固体胶	补血，滋阴，润燥；益气（4次）
百合 Lily	Lilium lancifolium Thunb.、Lilium brownie F.E.Brown var.viridulum Baker、Lilium pumilum DC.	肉质鳞叶	养阴，润肺，清心（养心），安神；补中，益气（5次）
薄荷 Mint	Mentha haplocalyx Briq.	地上部分	醒脑，利咽，行气（理气）；
党参 Codonopsis root	Codonopsis pilosula (Franch.)Nannf.、Codonopsis pilosula Nannf.var.modesta（Nannf.）L.T.Shen或Codonopsis tangshen Oliv.	根	健脾，益肺，养血（补血），生津；
地黄 Rehmannia	Rehmannia glutinosa Libosch.	块根	鲜地黄：清热，生津，凉血；生地黄：清热，生津，凉血；熟地黄：补血，滋阴，益精；
杜仲叶 Eucommia leaf	Eucommia ulmoides Oliv.	叶	补肝，补肾，强筋骨
茯苓Poria cocos	Poria cocos(Schw.)Wolf	菌核	健脾，宁心；
葛根kudzu vine root	Pueraria lobata（Willd.）Ohwi	根部	生津，止渴，解酒；
枸杞子Goji berry	Lycium barbarum L.	成熟果实	滋补肝肾，益精，明目
荷叶 Lotus leaf	Lotus leef nucifera Gaertn.	叶	清暑，化湿，凉血；
化橘红 Pummelo peel	Citrus grandis'Tomentosa'和Citrus grandis（L.）Osbeck	外层果皮	理气，化痰，消食，解酒
黄精 Sealwort	Polygonatum kingianum Coll.et Hemsl.	根茎	补气，养阴（滋阴），健脾，润肺，益肾；
黄芪 Astragulus	Astragalus membranaceus（Fisch.）Bge.var.mongholicus（Bge.）Hsiao或Astragalus membranaceus（Fisch.）Bge.	根	益气，养血（补血），生津；
火麻仁 Hemp seed	Cannabis sativa L.	成熟果实	润肠，通便；
鸡内金	Gallus gallus domesticus Brisson	沙囊内壁	健胃，消食；
金银花 Honeysuckle	Lonicera japonica Thunb.	花蕾或带初开的花	清热
菊花 Chrysanthemum	Chrysanthemum morifolium Ramat.	花序	清热，平肝，明目
莲子 Lotus seed	Nelumbo nucifera Gaertn.	种子	补脾，益肾，养心，安神；
灵芝 Reishi mushroom	Ganoderma lucidum（Leyss.exFr.）Karst.或Ganoderma sinense Zhao，Xu et Zhang	子实体	补气，安神；
罗汉果 Monk fruit	Siraitia grosvenorii (Swingle.)C.Jeffrey ex A.M.Lu et Z.Y.Zhang	果实	清热，润肺，利咽，润肠；清嗓

Premarket approval

➢ Novel foods, new food additives, and new food contacts

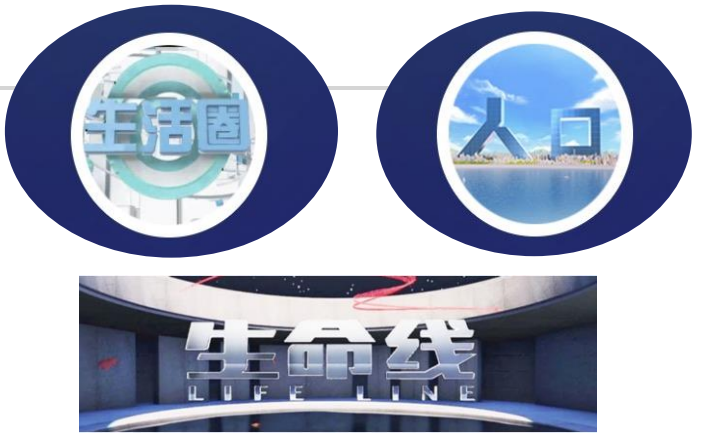
- Reviewed > **3000** applications, approved > **700** such products since 2016.
- **Guidelines** for the Safety Review of Novel Food Ingredients from Cell Culture was published.
- The **Requirements for Application Materials for the Safety Evaluation of Genetically Modified Microorganisms Used in Food Processing (Trial)** was issued.
- Scientific Opinions and Regulatory Recommendations on Cultivated Meat was submitted to the food safety authority.
- "Study on the Safety Assessment and Guarantee System for the Development of Alternative Protein Industry in China" was



Risk Communication

- Multi-channel risk communication strategies

  - TV Shows
  - Social Media
  - Mobile App
  - Printed Materials



CFSA's Role Globally

Cooperated with international organizations

World Health Organization

Food and Agriculture Organization of the United Nations

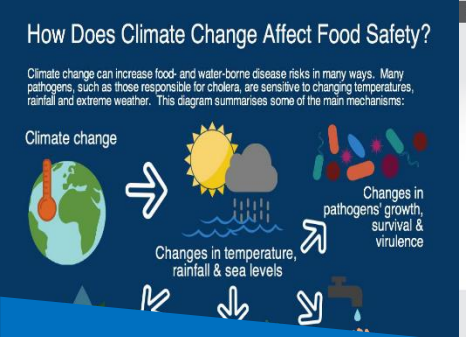
CODEX ALIMENTARIUS
INTERNATIONAL FOOD STANDARDS

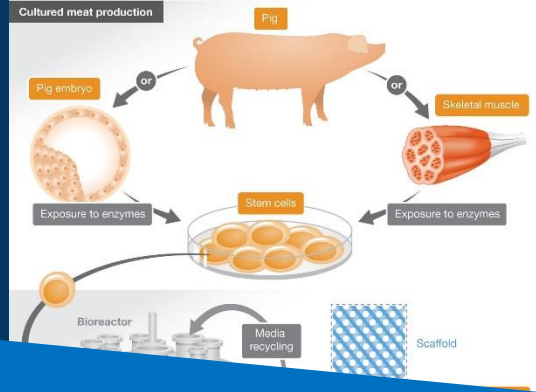
efsa EUROPEAN FOOD SAFETY AUTHORITY

BfR
German Federal Institute for Risk Assessment

FOOD STANDARDS Australia • New Zealand
Te Mana Kounga Kai - Ahitereiria me Aotearoa

FDA U.S. FOOD & DRUG ADMINISTRATION





Scientific Challenges

- Antibiotic resistance
- NFPS (insects, cell-based, food-medicine substances)
- New processing technologies (nanotechnology, 3D printing, cellular engineering)
- New understandings of traditional risks (chemical contamination, allergies)
- Changes in pollution patterns due to climate change

Social Challenges

- Internet+ new business models
- Lifestyle changes
- Impact of globalization
- Professional whistleblowing
- Regulatory approaches

Thank you for your attention!

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