



Feed Safety : Importance, Codex Standards & FAO Initiatives

for

*First OIE/FAO-APHCA Regional Workshop
on Feed Safety - Feed borne Disease
Prevention*

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Coverage

- Global Scenario & food safety
- Importance of feed safety & hazards associated with feeds
- Important issues in food/ feed safety
- Codex /FAO work on Animal Feeds
- Code of Practice on Good Animal Feeding
- Suggested areas for capacity building activities in the Region

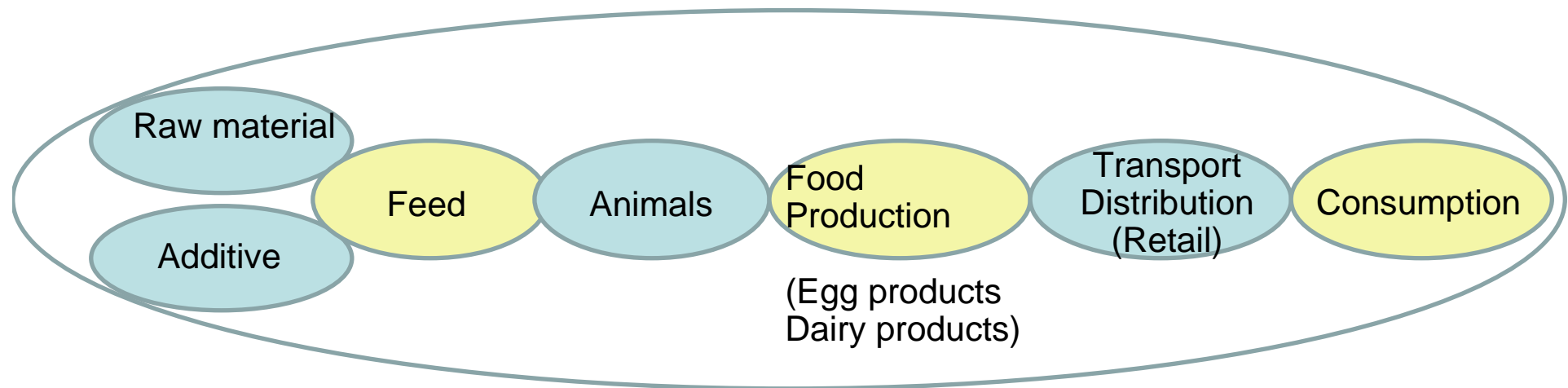
Global Scenario & Food Safety

- Establishment of WTO - dismantling of barriers for free flow of trade
- Creation of global market with equal access to all countries – leading to increase in trade
- Quality & safety issues acquiring global focus
- Public concern on safety of foods of animal origin has increased – diseases, residues, contaminants, etc
- Food production chain increasingly complex – primary production to consumption
- Safety of animal foods begins with safety of animal feed
 - Direct trade of feed or feed ingredients
 - Impact on products of animal origin

The Food Chain Approach

FAO defines the food chain approach as:

“Recognition that the **responsibility for the supply of food that is safe, healthy & nutritious is shared along the entire food chain** – by all involved with production, processing, trade & consumption”



Approach covers **primary production to final consumption**

➤ **Stakeholders** – farmers, processors, transporters, distributors (wholesale & retail), consumers- government role of enabler

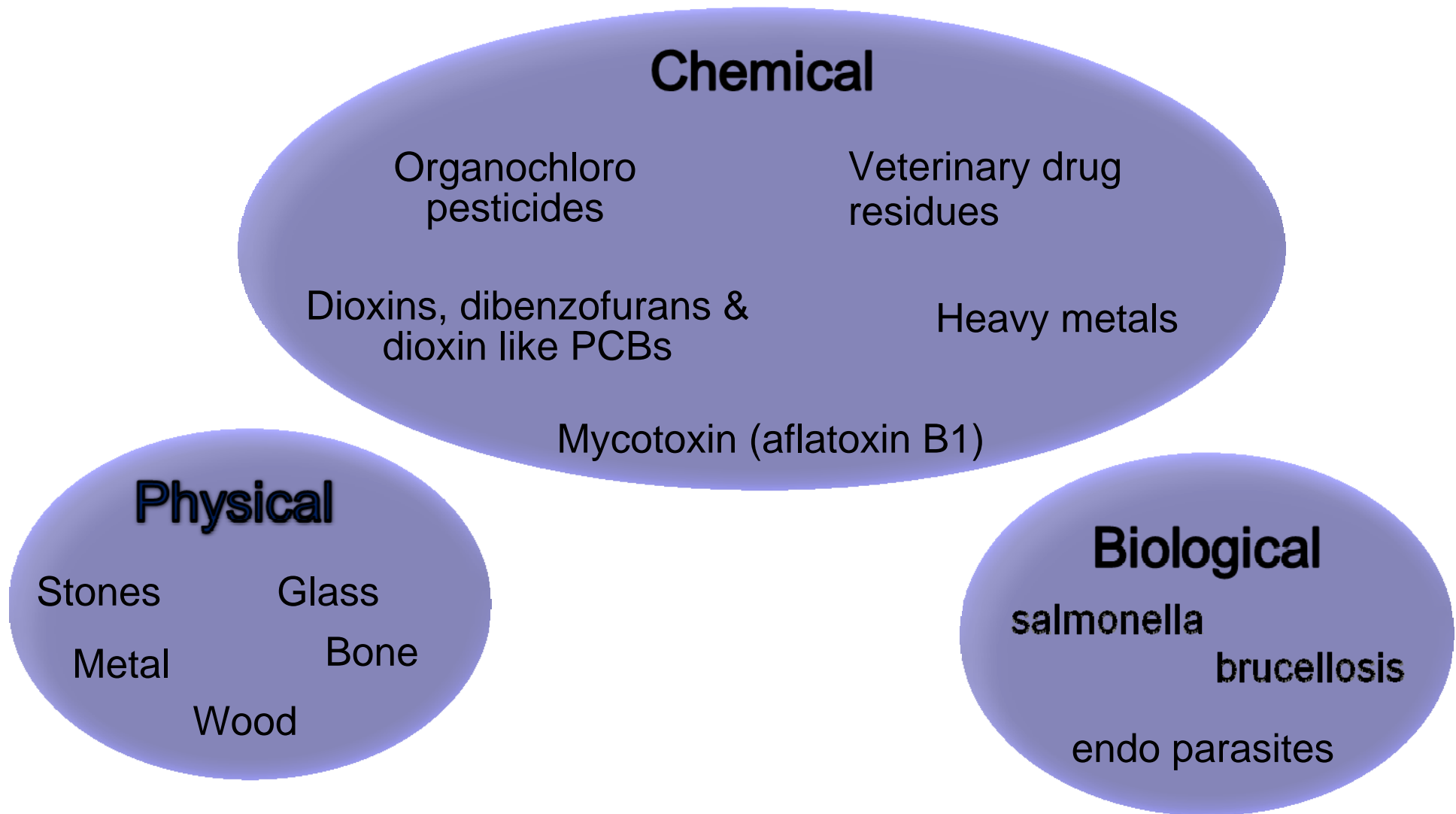
Why is Feed Safety Important

- Hazards associated with feed enter food chain – consequences
 - Risks to human Health
 - Economic impact(product destruction, market losses, etc)
- Examples
 - Dioxin in eggs & chicken (Belgium)
 - Melamine in eggs (China)
 - Pesticide residues in meat
 - Veterinary drug residues in eggs
 - BSE in cattle
 - Aflatoxin in milk

Examples

- ➔ **Melamine** contamination of food & feed – Chinese MoH reported in Nov 2008 that **294 000** infants had been affected by melamine contaminated **infant formula**, **> 50 000 infants hospitalized** & 6 deaths confirmed
- ➔ **Dioxin** contaminated Irish pork in 2008 exposed consumers to dioxin levels of **80-200 times** above safety limits. Cause – **pig feed from 1 producer** tainted with **industrial oil** (used in 9 farms) – chain effect. Estimated losses **> USD 1 billion**

Food Hazards associated with Feeds



□ **Hazard** : A biological, chemical or physical agent in, or condition of, food/ feed with the potential to cause adverse health effect.

Source of hazards

- environment
- manufacturing
- use of contaminated raw materials
- storage
- transportation, distribution



Important Issues in Feed Safety

- Increasing relevance of Standards (International standards)
- Increased focus on residues and contaminants - Pesticide & vd residues, environmental chemicals – (heavy metals, dioxins, PCBs, radionuclides), RMP
- Comprehensive integrated food chain approach & role of all stakeholders
- Risk-based preventative approach to control hazards associated with feed safety
- Traceability

Traceability - Important Concepts

□ Traceability refers to “one step forward” & “one step backwards” approach to

➤ Identify immediate **customers & suppliers**

Customers

Downstream tracing refers to ability to establish where products went to - important to identify & recall contaminated products & not safe ones –so minimize size of recall

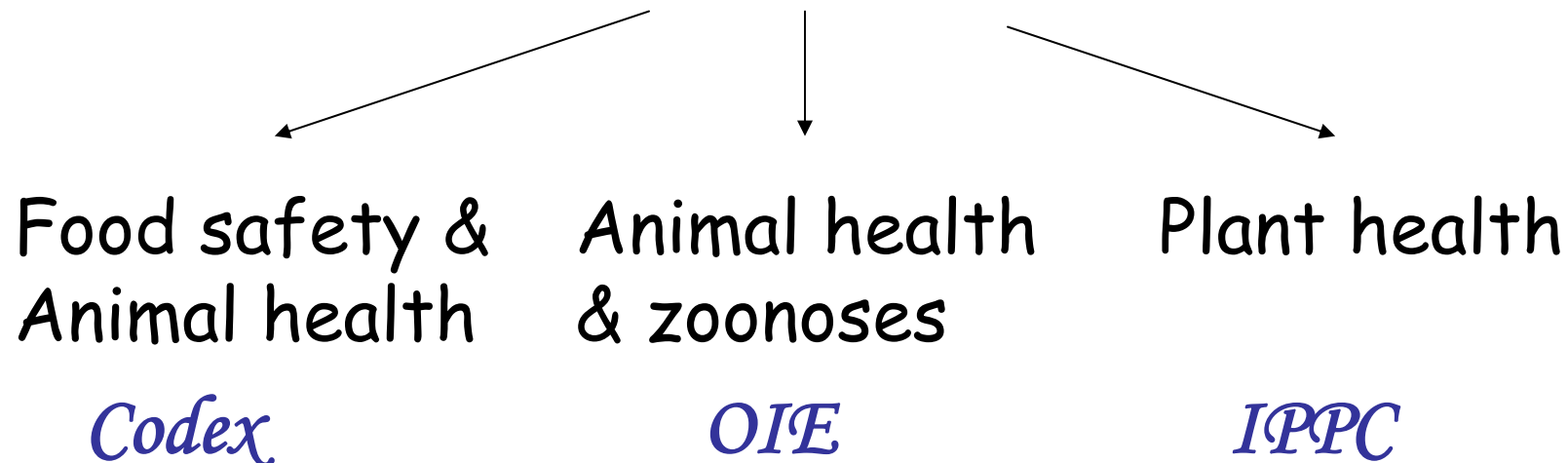
Suppliers

Upstream tracing refers to ability to identify where products came from –need to investigate & rapidly establish the source of problem & rectify the same, prevent further occurrences & resume production

Work of
Codex Alimentarius Commission
on Feed Safety

SPS *Article 3* Harmonization

- Encourage use of international standards



- SPS permits higher standards based on risk assessment

Codex Alimentarius Commission

- An Intergovernmental body
- **Founded** in 1962 to implement the Joint FAO/WHO Food Standards Programme
- **Programme Objectives**
 - protect the health of consumers
 - ensure fair practices in international food trade(incl feed)
 - coordinate all food (& feed) standardization work at the international level
- **Membership** - 180 countries + 1 member org (EC)
– representing 99% of world population
- **Observers:** international organizations: scientific, industry, trade, consumers

Codex Documents(Standards/ Guidelines/ Recommendations)

- Food (includes feed) safety & hygiene
- Nutrition
- Labelling
- Import & export inspection & certification
- Quality of foodstuffs (includes feed)

Codex General Subject Committee

- General Principles – France
- Food Hygiene – USA
- Contaminants in food – Netherlands
- Food Additives – China
- Pesticide Residues – China
- Residue of Vet Drugs in Food – USA
- Food Labeling – Canada
- Methods of Analysis & Sampling – Hungary
- Food Import & Export Inspection & Certification Systems – Australia
- Nutrition and Food for Special Dietary Use - Germany

Codex Commodity Committees

- Commodity Committees that meet regularly:
 - Fats & Oils – United Kingdom
 - Fish & Fishery Products - Norway
 - Fresh Fruits & Vegetables - Mexico
 - Milk & Milk Product – New Zealand
 - Processed Fruits & Vegetables - USA
- Commodity Committees that meet through correspondence or are in recess :
 - Cereal, Pulses & Legumes - USA
 - Natural Mineral Water - Switzerland
 - Meat Hygiene
 - Sugars - United Kingdom
 - Cocoa Products & Chocolates - Switzerland
 - Vegetable Proteins - Canada

Important Codex Work on Feed Safety

- Classification of foods & animal feeds (CAC/Misc 4 – 93)
- Codex General standard for contaminants in foods & feeds (Codex stan193-1995)
- MRLs for pesticides (CAC/MRL 1-2009); veterinary drug (2-2009), extraneous MRLs (CAC/MRL 3-2001)
- Code of Practice on reduction of dioxin & dioxin-like PCB contamination in foods & feeds (CAC/RCP 62-2006)
- Code of practice for reduction of aflatoxin B1 in raw material & supplemental feedingstuffs for milk producing animals (CAC/RCP 45-1997)
- **Code of practice on good animal feeding (CAC/RCP 54-2004)**

Other Codex Standards - Applicable to Feeds-1

- **Traceability** - Principles for traceability/ product tracing as a tool within a food inspection & certification system (CAC/GL 60 – 2006)
- **Risk analysis**
 - Working principles for risk analysis for application in framework of Codex Alimentarius;
 - Principles & GL for the conduct of microbiological risk management;
 - GL for conduct of food safety assessments of foods derived from recombinant-DNA animals;
 - Principles for the risk analysis of foods derived from modern biotechnology

Other Codex Standards - applicable to Feeds-2

- **HACCP** - Recommended international Code of Practice – General principles of food hygiene (4 rev 2003) & Annex on HACCP systems & GL for its application
- **Emergency situation** - Principles & guidelines for exchange of information in food safety emergency situations (CAC/GL 19 – 2004)
- **Inspection & certification** – principles(CAC/GL 20-1995) ; GL for design, operation, assessment & accreditation of food import & export insp'n & certification systems (CAC/GL 26 1997)

Code of Practice on Good
Animal Feeding CAC/RCP 54-
2004

Code of Practice on Good Animal Feeding

- Establishes a feed safety system for food producing animals to cover **whole food chain**, takes account of relevant aspects of both animal health & environment to **minimize risks to consumers**
- **Objective** –help ensure safety of food for human consumption through adherence of **good animal feeding practices** at farm level & **GMPs**
- **Covers**
 - General principles & requirements
 - GMPs during procurement, handling, storage, processing, distribution of animal feeds & feed ingredients for food producing animals
 - Good animal feeding practices at farm level
 - Sampling & analysis

General Principles & Requirements

- Meet acceptable **quality standards**
- **GAP, GMP, HACCP** principles followed
- Collaboration b/w **partners** (identify & control hazards)
- **Feed ingredients**
- **Labelling**
- **Traceability & record keeping**
- **Emergency situations** – CA informed, trade
- **Inspection & control procedures**- self regulation & official controls
- **Health hazards** associated with feed identified & controlled – residues, additives, undesirable subs

Production, processing, storage, transport & distribution (*GMPs/ HACCP*)

- Responsibility of all participants in food chain
- **Premises** (bldg/ eqpt constrn, water, sewage/ waste)
- **Receiving, storage & transportation**
- **Personnel training**
- **Sanitation & pest control**
- **Equipment** performance & maintenance
- **Manufacturing controls** - Avoid cross contamination, Pathogen control procedures
- **Recalls** - records of identification & distribution

On-farm Production & Use of Feed & Ingredients

Guidance on cultivation, m/f, mgmt & use on farms

- GAPs to be applied at all stages of on farm production – pastures, cereal grain & forage crops
- Hazards - Biological (bacteria, fungi, other pathogens), Chemical (residues), Physical (broken needles, m/c)
- Agricultural production of feed – site selection, fertilizers, pesticides
- Manufacture of feed on farm – feed ingredients, mixing, monitoring records
- Good animal feeding practices – water, pasture grazing, feeding
- Stable feeding & lot intensive units

FAO Initiatives



FAO Initiatives

- Provide scientific basis to Codex through independent scientific expert Committees, meetings & consultations
- Development of guidelines & documents
- Scientific reviews & expert consultations/meetings
- Communication & information Exchange mechanisms
- Capacity Building Initiatives

Science-based documents/ decisions

- Provide scientific basis to Codex through independent scientific expert Committees, meetings & consultations
 - Joint FAO/WHO Expert Committee on Food Additives (JECFA)
 - Joint FAO/WHO Meetings on Pesticide Residues (JMPR)
 - Joint FAO/WHO Expert Meetings on Microbiological Risk Assessment (JEMRA)
 - Joint FAO/WHO ad hoc Expert Meetings on Safety Assessment of Food Derived from Biotechnology
 - Joint FAO/WHO Meeting on Pesticide Specifications (JMPS)
 - Joint FAO/WHO Committee on Nutrition (JECN)

Priority Areas for Scientific Advice

- Some priority areas include:
 - **Pathogens:** Viruses, Mycobacterium, *Salmonella*, *Campylobacter*, and Pathogenic *E Coli*
 - **Chemicals, Contaminants and Residues:** Mycotoxins, Metals, Bisphenol A, Pesticide & Veterinary Drug Residues
 - **Animal Production:** Antimicrobial Resistance, feed safety, & recombinant vaccines in food producing animals
 - **New Technologies of Production Systems:** Nanotechnologies
 - **Nutrition:** Fat & Fatty Acids, Protein Quality, Nutrient Composition, Milk & Milk Products, & Vitamin A
 - **Others:** Risk-benefit assessment & emerging issues related to climate change

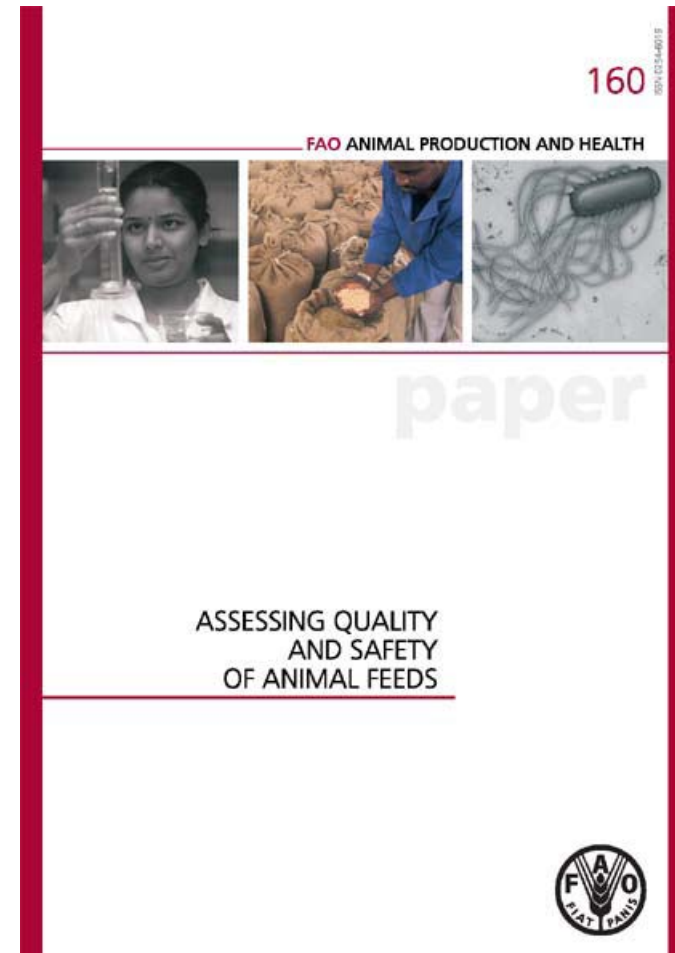
Guidelines & Documents

- Animal feeding and food safety – Report of an FAO Expert Consultation, Rome – FAO F&N Paper 69
- Manual on the application of HACCP systems in mycotoxin prevention & control – FAO F&N Paper 73
- Safety Evaluation of certain mycotoxins in foods - FAO Food & Nutrition Paper 74
- Assessing quality & safety of animal feeds – Animal production & Health Paper 160
- Worldwide regulations for mycotoxins in foods & feeds in 2003 - FAO Food & Nutrition Paper 81

Scientific Reviews & Expert Consultations

Assessing quality & safety of feeds (FAO 2004)

- Scientific reviews of information in 6 areas
 - Modern techniques on analysis
 - Variability in feed composition
 - Nutritional quality
 - Microbiology
 - Contaminants & toxins
 - Antibiotic growth promoters



FAO/WHO Expert Meeting on Animal Feed Impact on Food Safety, 2007

- **Objectives**

- Review current state of knowledge on animal feed, its impact on public health & international trade
- Analyze current situation on int standards on animal feed
- Identify areas for standards development for feeds/
recommend further actions



FAO/WHO Expert Meeting on Animal Feed Impact on Food Safety, 2007

Recommendations

- Code promoted (good animal feeding)
- Inexpensive & accurate screening methods developed (dioxins, dibenzofurans & dioxin like PCBs); aflatoxin B1 (semi quantitative)
- Codex emergency code to also cover feed
- Emergency response systems (feed/food) be developed
- Trainings (regulators, inspectors, feed m/f & distribution chain, livestock industry)



Information Exchange Mechanisms

- International Portal on Food Safety, Animal & Plant Health – a joint initiative with IPPC, OIE, Codex & WTO; www.ipfsaph.org
- INFOSAN – International food safety authorities network – for dissemination of important global food safety information
- FishPort – a web based system for dissemination of technical and scientific information on fish safety & quality; www.fishport.org
- Web page on Vet & Public Health, Feed & Food Safety; www.fao.org/ag/AGAinfo/programmes/en/A6.html
- Emergency prevention & early warning in the area of food safety (EMPRES Food Safety): EMPRES-FS@fao.org

Capacity Building

- Need to respond to existing/emerging food safety & Q issues
- Countries not always well equipped - technical, financial, info on hazards/ risks, effective institutional framework, trained manpower, etc
- FAO assists in capacity building in various **areas** :
 - Policy advice on specific issues
 - Institution development/ strengthening
 - Development of guidelines & capacity building tools including manuals, guides, training software, case studies, etc
 - Reviewing & updating food legislation
 - Harmonizing food regulations & standards with Codex/ other IS
 - Training – government, producers/ processors, academia, consultants, consumers
 - Studies & applied research
- Capacity building activities based on government requests/ regional or subregional WS if problem common

Capacity Building Tools - Some eggs

- Strengthening national food control systems: GL to **assess capacity building needs** -2006
- Quick guide to assess capacity building needs-2007
- Enhancing **participation in Codex activities** - 2005
- A training manual in **food hygiene & HACCP** - 1998
- On-farm mycotoxin control in food and feed grains – training manual (2007)
- Good practices for the feed industry – Implementing the Codex Alimentarius code of practice on animal feeding (2010)
- Good practices for **meat industry** (2004)
- Microbiological Risk Assessment

Capacity Building - Funding

- STDF – FAO, WHO, OIE, WTO, WB; both as financing & coordinating mechanism; countries submit proposals for consideration; information on www.standardsfacility.org
- FAO/WHO Trust Fund – support participation of developing countries in Codex
- Funding through TCPs by donors, FAO, country
- Global Initiative for Food Related Scientific Advice (GIFSA) fund

Regional Focus

- **29th FAO Regional Conference for the Asia & the Pacific (March 2009)** recognized the need to
 - strengthen **national food-control systems**
 - improve the **coordination** of food safety activities from farm-to-table
 - generally raise **awareness** of importance of food safety
 - adopt a **food chain approach**
 - Have national food control systems as **risk-based & preventive** in nature (use of HACCP along with GPs)
- Regional collaboration/cooperation noted as crucial to address existing & emerging food safety issues

Some suggested areas for capacity building activities in Asia

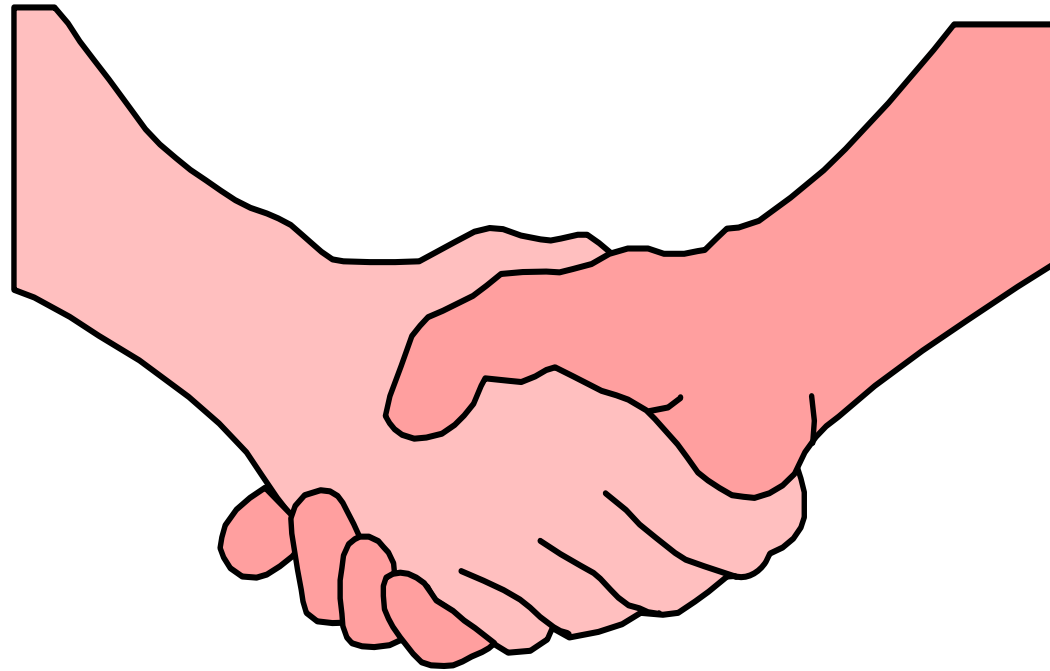
- **Promotion of code** on good animal feeding
- Training programs on use of screening methods for detection of aflatoxin B1
- Trainings to regulators, inspectors, feed manufacturers & distribution chain, livestock industry – **feed safety & good animal feeding**

Recommendations for Governments

- Support **implementation of safety & Q** management & assurance in feed industry (legislation, procedures, impln mechanism)
- Raise **awareness** among farmers, feed producers, food processors, government authorities on feed & food safety & their linkages
- Promote code on good animal feeding
- develop screening methods for detection of contaminants & residues (eg aflatoxin B1)



THANK YOU



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Risk Analysis

◎ Risk Assessment

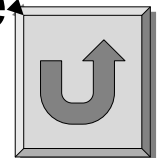
- Identify the immediate, interim & long term effect on human health
- Covers hazard identification, hazard characterization, exposure assessment, risk characterization

◎ Risk Management

- To establish appropriate measures of control to prevent, reduce or minimise the risks

◎ Risk Communication

- To determine the best way to communicate the information to affected populations



Labelling

➡ Clear & informative on handling, storage & use

➡ Cover

- Category of animal
- Purpose for which feed is intended
- List of feed ingredients
- Contact information of manufacturer
- Registration number
- Lot identification
- Directions for use
- Manufacturing date
- Expiry/ use by date

