FAO PROGRAM ON MYCOTOXINS IN DEVELOPING COUNTRIES

MYCO-GLOBE PROJECT
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Maya Pineiro, Ph.D.
Food Quality and Standards Service
Food and Agriculture Organization (FAO)
1. Food safety overall concepts
2. Mycotoxins risks and priorities
3. Problems/answers in developing countries
4. FAO’s technical assistance
5. Future issues
6. Final considerations
WHAT HAS HAPPENED?

- Increased awareness
- Increased legislation
- Increased trade barriers
FOOD SAFETY
SITUATION
NOT STATIC
Food safety and quality
  – public health
  – food security
  – international trade

Increasingly globalized risks

National systems interface with international (proactive and reactive)
Increased burden/emerging food borne hazards

Complexity of production, processing, marketing systems

Technological developments

Increase in size and economies of production systems

Changes in lifestyles

Trade liberalization

INCREASED RISKS
Mycotoxins are they a risk, a priority?
**MYCOTOXINS**

**UN INDICATORS OF SUSTAINABLE DEVELOPMENT***

- **WORLDWIDE ATTRACTION**

- **SIGNIFICANT ECONOMIC LOSSES IN PRODUCTS, ANIMAL PRODUCTIVITY AND TECHNOLOGIES**
  - FAO 1000 million tonnes/yr
  - World Bank –economic impact case studies

- **SANITARY- IMPACT ON ANIMAL AND HUMAN HEALTH**

- **TRADE IMPAIRED, INTERNATIONAL AND DOMESTIC TRADE BARRIERS**

*Environmetal indicators related to protection and promotion of health*
Additional Risks for Mycotoxins

- Intensive agricultural practices
- Stress in natural resources
- Zero risk/outrage
- Food security
Breakdown in security at one point, consequences in the whole chain
Challenges

- improve mycotoxin control
- strengthen consumer confidence
- develop cooperation policies and science
- improve information and communication
THE ANSWER?
FAO Technical Assistance
INTEGRATED FOOD SAFETY AND QUALITY POLICY

- public health
- food security
- international trade
- A modern FCS
Working Together to Diminish Mycotoxin Contamination

Management in a holistic way of risks

● health
● agriculture
● food industry
● environment

IN AN EFFICIENT AND INTEGRATED APPROACH!!
Sustainable Strategy for Mycotoxin Control - Issues for Consideration

- Integrated farm to table concept = continuum. Seamless inspection
- Reduction by Prevention
- Incorporate diversity of skills and resources
- Key players identified and involved in strategy implementation. Multi-agency
- Science based decisions - Risk analysis
- Transparency
- Regulatory impact assessment (FAO Conference 2003)
- Monitor
PLAYERS IN FOOD CHAIN

SAFETY

GOVERNMENT

INDUSTRY

ACADEMIA

CONSUMER

LEGISLATION
Food Safety
Based on Scientific Advice
How Do We Do That?
Food control system building blocks

- Funding/investment
- Food Law and Regulations (+enforcement)
- Food Control Management and Policies
- Food Inspection/Analytical Services (+QA)
- Food Monitoring and Surveillance
- Foodborne Disease Surveillance
- Human Resource Development
- Information and Cooperation
ANSWERS TO MYCOTOXIN PROBLEMS?
**OVERALL MAIN PROBLEMS**

- Food Control Systems in general
- FC Infrastructure and resources

In addition:

- Inadequate agriculture/food processing industry
- Technical assistance needs
SPECIFIC ISSUES OF DEVELOPING COUNTRIES

- Lack of political will and support
- Food Chain Highly Fragmented. Ad hoc
- Inadequate Regulations, Facilities, Infrastructure, Capacity
- Lack of Knowledge and Poor Standards of Hygiene (GAP/GMP/GHP)
- Small Scale Farmers/Processors and Lack of Investment
- Poor Support for Food Control in the Domestic Market
- Under-funding of Science Based Support Structures
Mycotoxins Problems in Developing Countries

Three major areas:

1- inadequate food control systems (FCS)
2- lack of prevention and control policies and strategies coordinated into integrated national plans of action
3- insufficient awareness and funding
Level of country development conditions the approach

TWO-FOLD APPROACH

- TECHNICAL
  - Targeted to specific needs

- ORGANIZATIONAL/MANAGERIAL
  - Organizing a modern FCS and risk based action plans
ESNS capacity building activities in support of prevention and control are instrumental in providing up to date information and technologies, and disseminating effective strategies to developing countries.

CODEX/JECFA specific work provides harmonized standards, guidelines, codes of practice, scientific advise.
Developing a National Control Strategy

Request for assistance by developing country government leads to FAO/ESNS technical cooperation project = TCP
FAO TCPs 2002-2004
Assistance in prevention and control of mycotoxins in food: main components

- Inception mission, diagnosis and policy advice
- Consultants: international, TCDC, national
- Awareness raising
- Training: on site, workshops, study tours
- Legal bases and regulatory framework, develop/update
- National Action Plan
- Prevention and control strategies, Integrated systems GAP/GMP/HACCP
- Training in “best practices” and detection methods
- Updated laboratory methods, reference materials, equipment, interlaboratory tests
main components, con’t

- Harmonization of national stds. with Codex and other int. regulations
- Risk assessment
- Data generation
- Monitoring and surveillance programs
- Laboratory infrastructure, methods, QA
- Communication strategies-video, brochures, seminars, press
- DONcast: rapid alert, target regulatory and market action
FAO’S ESNS capacity building program on mycotoxins

3 Key Areas:

- Prevention and control-GAP/GMP/HACCP-“best practices” and strengthening FCS
- Implementation of quality assurance measures in mycotoxin laboratories for the generation of validated data
- Training in risk analysis/assessment
Through

- Field projects (TCP, UTF, Global, etc.)
- Training: workshops, seminars, conferences, expert consultations
- Consultancies and policy advise
- Communication tools: publications, manuals, videos, CD-roms, leaflets
1. PREVENTION AND CONTROL

- Global Project, the “Enhancement of Coffee Quality through Prevention of Mould Formation”: prevention of OTA along the coffee chain, data on levels and distribution of OTA, improved capacity for OTA analysis and effect of good practices in 7 coffee producing countries.
Technical assistance projects (TCPs) applying the GAP/GMP/HACCP approach to face mycotoxin problems and emergencies
- Ongoing: Uruguay, Iran, Ecuador, Vietnam, Uganda, Thailand
- Pipeline: South Africa, Argentina, Egypt, Senegal, Dominica, Nicaragua, INFAL

Several international workshops, with on site development of HACCP plans


Joint Publication on Prevention and Control of Mycotoxins IARC/FAO/WHO
FAO HACCP Training Programme

- Principles and Methods of Training

- Recommended International Code of Practice - General Principles of Food Hygiene

- The Hazard Analysis and Critical Control Point

- Manual on the Application of the HACCP System in Mycotoxin Prevention and Control (Food Nutrition 73)

- As specific training in the TCP projects
2-Quality Assurance (QA)

- Regional Training Courses on Development of Quality Assurance for Mycotoxin Analysis (Africa, LAC, Asia, Central Europe)
- Support with interlaboratory rounds
- Coordinated research project on mycotoxin methodology which involves development and validation of mycotoxin methods for developing country use (FAO/IAEA CRP on Mycotoxin Methods).
3-Risk Analysis (RA)

- Workshops on Risk analysis/Exposure assessment (all continents)
- Risk Analysis Manual with mycotoxin case study (fumo)
- Provision of advice to member countries through TCPs which include the risk assessment and risk analysis (management and communication of risk) components
RECENT FAO MYCOTOXIN PUBLICATIONS

- IARC/FAO/WHO Monograph 158
- Mycotoxin Regulations 2003
- Risk Analysis Manual (fumo case study)
Some New Areas of Mycotoxin Work

- Early warning systems
  - DON rapid alert forecasting for Fusarium epidemic

- Cost efficient analytical methods
  - Portfolio of methods for developing country use

- Emergency response action Kenya/Somalia

- GAP integrated approach global project on improving the quality and safety of FFV
International Fora

- Codex Committee on Food Additives and Contaminants (CCFAC)
- Codex Committee on Methods of Analysis and Sampling (CCMAS)
- FAO/WHO Expert Committee on Food Additives (JECFA)
- Shift from regulatory maximum limits to codes of practice (patulin, OTA, zea, fumo, tricos and drafts aflas tree nuts, peanuts)

- Recommended methods to performance characteristics validation criteria-uncertainty determination

- Sampling criteria
Joint FAO/WHO Expert meeting on food additives and contaminants (JECFA)

Joint FAO/WHO expert consultations and meetings on specific food safety matters, e.g. Mycotoxins 2000
Main obstacles in DC to diminish the mycotoxin problem are:

- insufficient government and private resources,
- outdated FCS (some or all of its components, including regulatory framework, infrastructure and facilities);
- scarce or no action plans for prevention and control; and
- lack of awareness and communication.
**MAIN RECOMMENDATIONS**

- promote harmonized regulatory framework,
- modernize food control systems,
- implement coordinated and integrated action plans along the entire food chain, such as PC strategies, use of codes of practice and the HACCP system
- conduct proper risk assessment,
- provide sector specific guidance,
- educate/train stakeholders and strengthen communication all throughout
A FINAL THOUGHT...
Cost-Benefit Considerations

Reduce hazards
- Associated costs
- Food security

Food safety, a universal right
The right to food

TRADE-OFF
BENEFITS AND COSTS
For More Information Visit Our Web Site:


food-quality@fao.org