Outline

• CGIAR and ILRI

• CGIAR Research Program on Agriculture for Nutrition and Health (A4NH)

• Food safety in informal market

• Examples from Vietnam
CGIAR: CGIAR 15 centers (IRRI, CIAT, IWMI...)

ILRI: International Livestock Research Institute

- Staff: 700
- Budget: $60 million
- 30+ scientific disciplines
- 120 senior scientists from 39 countries
- 56% of internationally recruited staff are from 22 developing countries
- 34% of internationally recruited staff are women
- Large campuses in Kenya and Ethiopia
- 70% of research in sub-Saharan Africa
HEALTH STAKEHOLDERS

• International organisations
• Regional organisations
• Private sector health provision
• Public health
• Veterinary public health
• NGOs
• Conservation
• Environment

RISK CREATORS

• Agriculture, intensification
• Natural resource management
• Industry
• Urbanisation
• ETC
Key goal of A4NH

- Maximizing Benefits:
  - Livelihoods
  - Incomes
  - Employment
  - Food security (quantity & quality)
  - Gender equity

- Reducing Risks:
  - Food borne diseases
  - Neglected zoonoses
  - Emerging disease
  - Other AE health risks

TARGET POPULATIONS
- Vulnerable and marginal populations
- Populations exposed to agriculture intensification
CGIAR Research Program on Agriculture for Nutrition and Health (A4NH)

- 3 components around human nutrition (IFPRI)
  - Food safety
  - Zoonoses
  - Emerging diseases
  - Ecohealth/OneHealth

1 component on prevention and control of Agricultural Associated Diseases
- Integrated programs & harmonized policies

RESULT: Improved nutrition and health, especially among women and young children
Agriculture-associated diseases

Goal: Prevent & control AAD for improved food safety, water quality, GAP and better control of zoonoses & emerging diseases

Sub Components:

– Improving food safety
– Controlling zoonotic diseases and diseases emerging from animals
– Other health risks of agro-ecosystems
## Projects on food safety in informal markets

<table>
<thead>
<tr>
<th>Project</th>
<th>Objective</th>
<th>Location</th>
<th>Duration</th>
</tr>
</thead>
</table>
| Safe Food, Fair Food  | • Assess risk in wet market  
                       |  • Pilot test risk management  
                       |  • Capacity development  
                       |  • Policy engagement  | Egypt, Ethiopia, Uganda, Tanzania, Senegal | 2012-2015 |
| PigRisk               |                                                                            | Vietnam                                       | 2012-2017      |
| Rapid assessment      | Assess food safety & nutrition research opportunities                      | Tanzania, Uganda, Vietnam, Zambia             | 2012-2014      |
| GetDairy              | Training & support of informal dairy sector                                | India                                         | 2008-2014      |
| MorePork              | Component on pork safety & nutrition                                       | Uganda                                        | 2014-2017      |
| CowKiller             | Multipathogen survey                                                      | Tanzania                                      | 2013-2014      |
| PeriMilk              | Assess urban bTB & AMR                                                     | India                                         | 2014-2017      |
## Projects on aflatoxins

<table>
<thead>
<tr>
<th>Project</th>
<th>Objective</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afla-Extra</td>
<td>Review &amp; map aflatoxins Aflatoxin impact on livestock</td>
<td>2012-2013</td>
</tr>
<tr>
<td>BecA</td>
<td>Screen wheat for resistance; diagnostics; kernel sorter; maps; decontamination</td>
<td>2011-2016</td>
</tr>
<tr>
<td>IFPRI</td>
<td>Portfolio on market incentives for aflatoxin management RCT on impact of aflatoxins on stunting</td>
<td></td>
</tr>
<tr>
<td>IITA</td>
<td>Portfolio on biological control of aflatoxins using Aflasafe Writing policy packages for EAC</td>
<td></td>
</tr>
<tr>
<td>ICRISAT</td>
<td>Integrated control of aflatoxins in groundnuts</td>
<td></td>
</tr>
<tr>
<td>CIMMYT</td>
<td>Breeding resistant maize varieties</td>
<td></td>
</tr>
</tbody>
</table>
## Projects on disease drivers, emergence

<table>
<thead>
<tr>
<th>Project</th>
<th>Objective</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>EcoZD</td>
<td>Ecohealth approaches to assessing and managing zoonotic diseases in SE Asia</td>
<td>2008-2014</td>
</tr>
<tr>
<td>Healthy Futures</td>
<td>Mapping and modelling Rift Valley Fever (malaria, schistosomiasis)</td>
<td>2011-2014</td>
</tr>
<tr>
<td>DDDAC</td>
<td>Diseases associated with irrigation: detection, impacts and management</td>
<td>2012-2015</td>
</tr>
<tr>
<td>LITS</td>
<td>Assessing and developing livestock traceability systems</td>
<td>2013-2014</td>
</tr>
</tbody>
</table>
Greatest Burden of Zoonoses Falls on One Billion Poor Livestock Keepers

An ILRI study shows that zoonotic diseases are major obstacles in pathways out of poverty for one billion poor livestock keepers. The diseases mapped cause 2.3 billion human illnesses and 1.7 million human deaths a year. In poor countries, the diseases also infect more than one in seven livestock every year.

LEGEND
Number of poor livestock keepers per square kilometre
- 1–5
- 5–20
- 20–50
- 50–100
- Above 100

- One or more people or animals out of 100 infected by one or more zoonotic diseases per year

Map by ILRI, from original published in an ILRI report to DFID: Mapping of Poverty and Likely Zoonoses Hotspots, 2012.
Food safety in informal market

More than 80% of perishables bought from informal markets

**Characteristics**

- No effective health and safety regulations;
- Many actors;
- Pay no tax;
- Traditional processing & retail practices;
- Poor infrastructure;
- Little support from public sector or NGO.

**Benefits**

- Cheap;
- Fresh;
- Local breeds;
- Taste;
- Trust vendors;
- Credit.
Africa: one billion consumers with high potential to consume more livestock products

Europe: ASF 21% of diet
SS Africa: ASF 6% of diet

By 2050: 2 billion consumers

Source: Herrero et al 2008
Increasing concerns over food safety

In 7 developing countries studied
- Many/most reported concern over food safety (40-97%)
- Willing to pay 5-10% premium for food safety
- Younger, wealthier, town-residing, supermarket-shoppers willing to pay more for safety
- Buy 20-40% less during animal health scares

Jabbar et al.; Lapar et al.
High levels of hazards across different settings and value chains

- First reported *Trichinella* in pork in Uganda; *Listeria* in milk and fish in Ghana
- Faecal bacteria unacceptable in 88% of pork samples in Nagaland
- 98% of meat in Ibadan unacceptable by one or more of 3 standards (TAC, EB, col)
- Unacceptable *B. cereus* in 24% of boiled milk in Abidjan
- Commercial broilers: 30% of chicken sold in South Africa unacceptable for *S. aureus*
- Farmed fish: 77% unacceptable TAC; 69% unacceptable for *S. aureus* in Egypt
Variable levels of risks and risk factors

- 4% consumers in Vietnam report GIT illness in last 2 weeks
  - No relation to pork or meat consumption, strong relation to vegetable consumption

- 9% consumers in Nigeria report GIT illness in last 2 weeks
  - Strong relation to meat consumption

- 23% consumers in Nagaland report GIT illness in last 2 weeks
  - No relation to pork, meat or vegetable consumption, strong relation to hygiene
Importance of social, economic and environmental factors

• The meat of women butchers in Nigeria had less microbial contamination than meat of men butchers in the same market.

• Urban dairies in Uganda that experienced harassment from authorities had fewer good practices than those who didn’t.

• Food in informal markets is more affordable:

<table>
<thead>
<tr>
<th>Most common price of raw milk</th>
<th>Most common price processed milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 KES a litre</td>
<td>90 KES a litre</td>
</tr>
</tbody>
</table>

Survey in Dagoretti, Nairobi, 2013
Findings are often counter-intuitive.
Improvements are feasible, effective, affordable

• **Branding & certification of milk vendors in Kenya**
  • Led to improved milk safety and saved economy USD 33 million

• **Peer training, branding, innovation for Nigerian butchers**
  • Led to 20% more meat samples meeting standards
  • Intervention cost USD 9 per butcher, but resulted in savings of USD 780 per butcher per year from reduced cost of human illness

• **Providing information on rational drug use to farmers**
  • Led to fourfold knowledge increase, twofold better practice, and halving of disease in animals
Food safety project (PigRISK)

to improve the livelihoods of rural and urban poor in Vietnam through improved opportunities and incomes from pig value chains as a result of reduced risks associated with pork-borne diseases.

- Assess impacts of pork-borne diseases on human health and identifying critical control points/opportunities for risk management using a “farm to table” approach. (*Salmonella, Streptococcus suis, antibiotic residues, growth promoters*)

- Develop and test incentive-based innovations to improve management of human health risks

- Sustainably improve capacity to assess and manage risks by engaging smallholders and co-generating evidence.

Key actors: producer, slaughterhouse, retailer, trader, consumers, input supplier. Hung Yen and Nghe An
Taskforce of risk assessment for food safety

Taskforce of risk assessment for FOOD SAFETY in Vietnam: linking science to policy to increase food safety

- Composed by food safety risk assessment experts from Universities, research institutes, policy makers from MOH and MARD

- Works on “case studies” on risk assessment of food commodities prioritized by policy makers and develop risk assessment guideline

- Trainings and follow-up

- Communication and dissemination
Thank you

better lives through livestock

ilri.org