Healthy lives: Tackling food-borne diseases and zoonoses

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Tropentag 2014: Bridging the gap between increasing knowledge and decreasing resources
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Towards evidence and impact at scale

Agriculture research and human health

- **Evidence**: Mapping, measuring, targeting
- **Technology**: diagnostics, vaccines, decision support
- **Impact**: Safe food in wet markets
Agriculture imposes large burdens on human health

*Emerging*
*Food borne*
*Malnutrition*
*Zoonoses*
*Malaria*

Three million deaths a year are agriculture associated.
One quarter of all deaths from infection are agriculture associated.
Almost all of these occur in developing countries.
Agriculture imposes large burdens on human health

Zoonoses and FBD kill 2.2 million a year

- 2.4 billion people sick
- 2.2 million people dead
- more than 1 in 7 animals affected

Zoonoses & FBD cost $84 billion a year

- $9 billion in lost productivity
- $25 billion in animal mortality
- $50 billion in human health costs
The poor are most affected by zoonoses and FBD.
Emerging infectious diseases 1940-2012

Zoonoses make up 75% of EIDs and cost 6.7 billion a year
Agricultural solutions work for most agriculture associated diseases

For 70% of ag. associated diseases proven and cost effective agricultural solutions exist
Most zoonoses and food-borne disease require agricultural solutions

Controlling zoonoses in animal reservoirs (n=13)
– On average $6 benefit for $1 cost

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<tr>
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<th>Ex ante</th>
<th>Ex post</th>
<th>Poor countries</th>
<th>Rich countries</th>
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<td><strong>Gain for 1$ cost</strong></td>
<td>5.0$</td>
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Table:

- Ex ante: 5.0$ gain for 1$ cost
- Ex post: 6.6$ gain for 1$ cost
- Poor countries: 3.7$ gain for 1$ cost
- Rich countries: 7.4$ gain for 1$ cost
Emerging diseases are difficult to prevent but timely responses reduce impacts

- Surveillance and response in animal hosts can reduce costs by 90%

Adapted from IOM 2009
ILRI: better lives through livestock
Evidence for ag. associated diseases
Technologies for ag. associated diseases

- Disease resistant animals
- Vaccines
- Rapid diagnostics
- Biocontrol for aflatoxins
Impact on ag. Associated diseases

- Food-borne disease is a major cause of diarrhea
- Most food is due to microbes in perishable foods
- Most perishables are sold in informal markets
- Workers in informal markets are untrained, often harassed, and have few incentives for selling safe food

Top 10 causes of death in low income countries (2012)

- Protein/energy malnut.
- Birth asphyxia
- Tuberculosis
- Preterm birth comp.
- Malaria
- Ischaemic heart disease
- Stroke
- Diarrheal diseases
- HIV/AIDS
- Lower resp. infect.
• Branding & certification of milk vendors in Kenya & Guwahti, Assam led to improved milk safety.

• It benefited the national economy by $33 million per year in Kenyan and $6 million in Assam

• 70% of traders in Assam and 24% in Kenya are currently registered

• 6 million consumers in Kenya and 1.5 million in Assam are benefiting from safer milk