Household nutrition and safe livestock products

Livestock Markets, Animal Source Foods and Human Nutrition: Considering Tensions, Maximizing Impact and Avoiding Harm
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Food Safety in Low and Middle Income Countries

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Food safety is an increasing concern in low and middle income countries (LMICs) due to the increase in the incidence of foodborne disease (FBD) and the growing awareness of public health implications. Studies in LMICs have shown that FBD is a significant public health issue, affecting a large proportion of the population and causing significant morbidity and mortality. These studies have highlighted the importance of improving food safety in these regions.

With the growing demand for food and the expansion of informal markets, there is a need to address the food safety challenges in these settings. The informal market sector is significant in many LMICs and plays a vital role in food distribution. However, food safety in these markets is often overlooked, and this can lead to increased risk of foodborne illnesses.

The informal sector in agriculture is growing due to the prevalence of smallholder and small-scale farmers, who often struggle to access extension services or other support. This sector is particularly vulnerable to food safety challenges, as farmers may lack the knowledge and resources to produce safe food.

In conclusion, improving food safety in LMICs is crucial for ensuring public health and promoting economic development. This requires a comprehensive approach that addresses the needs of both formal and informal market sectors, as well as the smallholder farmers who produce the majority of food in these countries. Further research and policy interventions are needed to address the complex challenges of food safety in LMICs.
Livestock food and nutrition

Protein rich foods in diets in Asia and Africa
### Food safety & livelihoods

*Grace et al., Gender roles and food safety in 20 informal livestock and fish value chains, 2015*

<table>
<thead>
<tr>
<th>Product</th>
<th>Production</th>
<th>Processing</th>
<th>Marketing</th>
<th>Consumed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Milk (cow)</strong></td>
<td>men (Nairobi)</td>
<td>women</td>
<td>women (Abidjan)</td>
<td>both</td>
</tr>
<tr>
<td><strong>Milk (goat)</strong></td>
<td>men (w milk)</td>
<td>women</td>
<td>women</td>
<td>both</td>
</tr>
<tr>
<td><strong>Beef/goat</strong></td>
<td>men (w assist)</td>
<td>men</td>
<td>men</td>
<td>both</td>
</tr>
<tr>
<td><strong>Poultry</strong></td>
<td>women</td>
<td>women</td>
<td>women</td>
<td>both</td>
</tr>
<tr>
<td><strong>Pigs</strong></td>
<td>women</td>
<td>men</td>
<td>men</td>
<td>both</td>
</tr>
<tr>
<td><strong>Fish, crabs</strong></td>
<td>men</td>
<td>women</td>
<td>women</td>
<td>both</td>
</tr>
</tbody>
</table>
Causes of FBD

Burden LMIC

- Microbes
- Helminths
- Aflatoxins
- Other toxins

Adapted from Havelaar et al., 2015
Foods implicated in FBD

Painter et al., 2013, Sudershan et al., 2014, Mangan et al., 2014; Tam et al., 2014; Sang et al., 2014; ILRI, 2016
Food safety & nutrition

- Diarrhoea a risk factor for stunting – perhaps 10-20%?
- Ingestion of faecal material on food or in the environment may contribute to environmental enteropathy
- Food allergies may affect 1-10% of children: eggs & milk often implicated
- Associations between aflatoxins and stunting
- Regulations aimed to improve food safety may decrease the availability and accessibility of foods
- Food scares decrease consumption

Grace, 2015
Pathways from unsafe food to poor health

Grace, in press
Un-intended consequences

Decreased dietary diversity, reduced poultry consumption, substitution of nutritious foods with sugary foods and increased stunting.
Can we regulate our way to food safety?

- 100% of milk in Assam doesn’t meet standards
- 98% of beef in Ibadan, 52% pork in Ha Noi, unacceptable bacteria counts
- 92% of Addis milk and 46% of Nairobi milk had aflatoxins over EU standards
- 36% of farmed fish from Kafrelsheikh exceed one or more MPL
- 30% of chicken from commercial broilers in Pretoria unacceptable for S. aureus
- 24% of boiled milk in Abidjan unacceptable S. aureus

Grace, 2015
Can we modernise our way to food safety?

- Supermarketisation is slower than thought.
- Formal sector food is risker than thought.
- Modern business models have often run into problems
  - Co-ops, abattoirs, market upgrades
Capacity building useful if incentives in place

- Many actors are well intentioned but ill informed
- Small scale pilots show short term improvements
- Smallholders have been successfully integrated into export chains

- But domestic GAP has limited effect
  - In 4 years VietGAP reached 0.06%
  - In Thailand GAP farmers have no better pesticide use than non-GAP

- While training & legitimising vendors
  - T&C Kenya

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CGIAR

Research Program on Nutrition and Health

EVIDENCE ON DEMAND

CLIMATE & ENVIRONMENT INFRASTRUCTURE | LIVELIHOODS
• 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 Kenya 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.

Johnson et al., 2015
Take home messages

- Livestock food can contribute to growth & good outcomes
- FBD is important for health and nutrition
- Most FBD is due to microbes & worms in fresh foods
- Efforts to improve FBD can be more harmful than FBD
- Control & command approaches don’t work but solutions based on working with the informal sector more promising
THANK YOU!!

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Further reading


better lives through livestock

ilri.org

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