



# FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



## ENSURING THE SAFETY OF ANIMAL-SOURCE FOODS

**Arie Havelaar, University of Florida, Gainesville, FL, USA**  
**June 5, 2019 – Washington, DC**

*Photo credit: International Livestock Research Institute (ILRI) & Heifer International*



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## THE GLOBAL BURDEN OF FOODBORNE DISEASE



### The burden of foodborne diseases is substantial

Every year foodborne diseases cause:

almost  
**in 10**  
people to fall ill

**33 million**  
healthy life years lost

Foodborne diseases can be deadly, especially in children <5

**420 000**  
deaths



Children account for  
**1/3**  
of deaths from  
foodborne diseases

**FOODBORNE DISEASES ARE PREVENTABLE.  
EVERYONE HAS A ROLE TO PLAY.**

For more information: [www.who.int/foodsafety](http://www.who.int/foodsafety)

**#SafeFood**

Source: WHO Estimates of the Global Burden of Foodborne Diseases, 2015.



World Health  
Organization



### Foodborne diseases in the WHO African Region

Every year

**>91 million**  
people fall ill



**137 000**  
people die

representing  
**1/3** of the global death  
toll for foodborne diseases

Diarrhoeal diseases are  
responsible for 70% of the burden  
of foodborne diseases



Non-typhoidal *Salmonella*



Foodborne cholera



*E. coli*



Chemical hazards (cyanide  
and aflatoxin) cause more  
than 3000 deaths annually

**Paralysis (Konzo)** caused by  
cyanide in cassava, is unique  
to the African Region, resulting in  
death in 1 in 5 people affected

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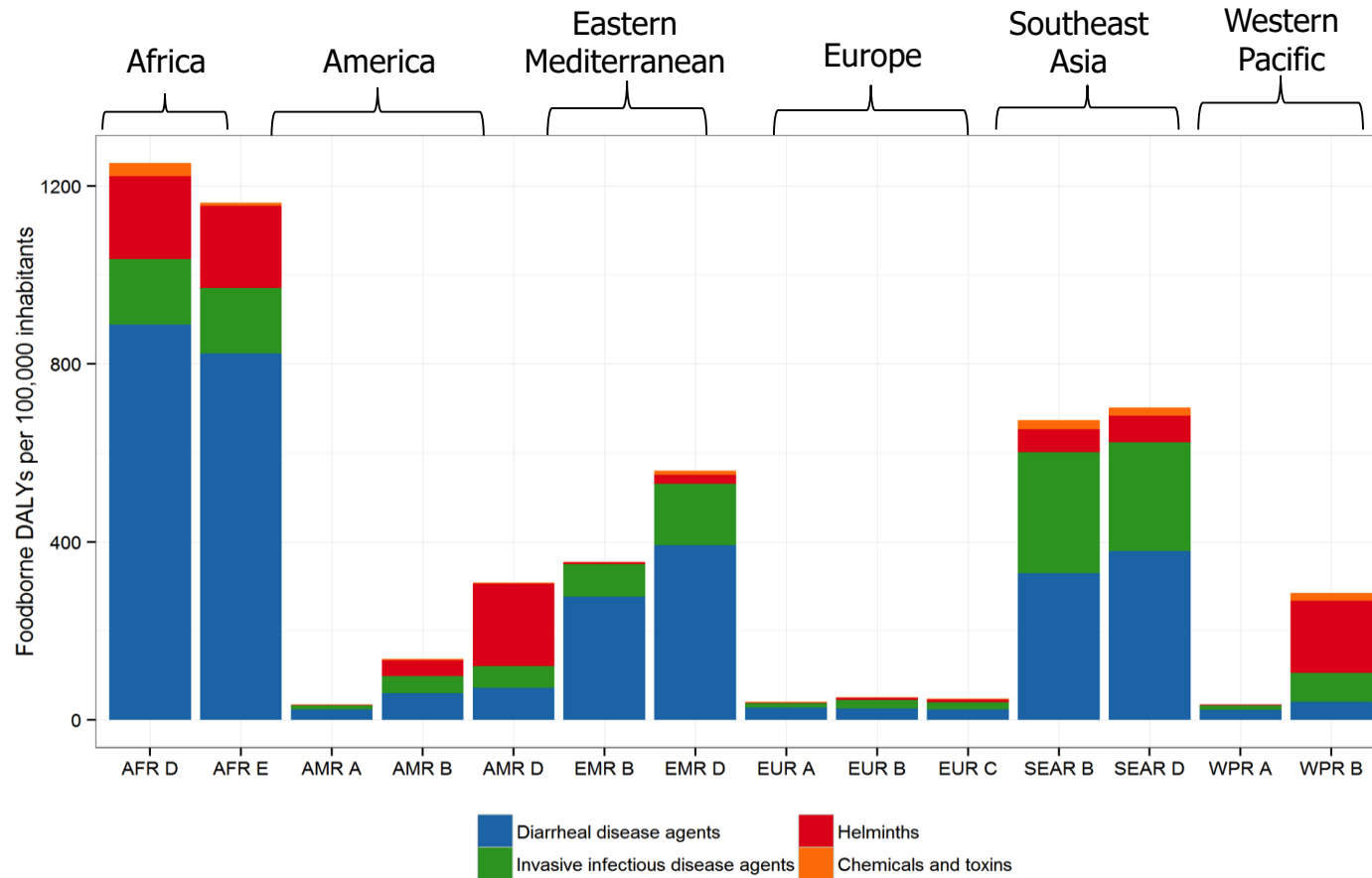
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## REGIONAL DIFFERENCES



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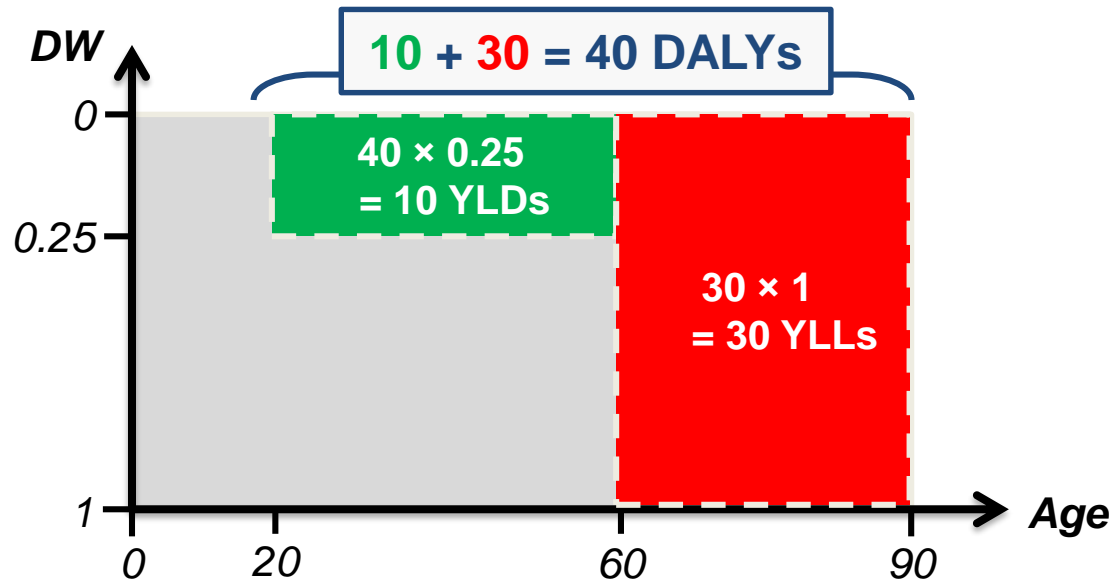


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$$\text{DALY} = \text{YLD} + \text{YLL}$$

- $\text{YLD} = \text{Years Lived with Disability} = N \times D \times DW$
- $\text{YLL} = \text{Years of Life Lost} = M \times RLE$



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## GLOBAL BURDEN OF ASF

|                                  | Burden (DALYs / 100,000) |
|----------------------------------|--------------------------|
| All foods                        | 477                      |
| Animal source foods              | 168 (35%)                |
| Non-typhoidal <i>S. enterica</i> | 49                       |
| <i>Taenia solium</i>             | 41                       |
| <i>Campylobacter</i> spp.        | 27                       |
| <i>Paragonimus</i> spp.          | 15                       |
| <i>Toxoplasma gondii</i>         | 9                        |
| <i>Clonorchis sinensis</i>       | 9                        |
| Other hazards                    | < 5                      |



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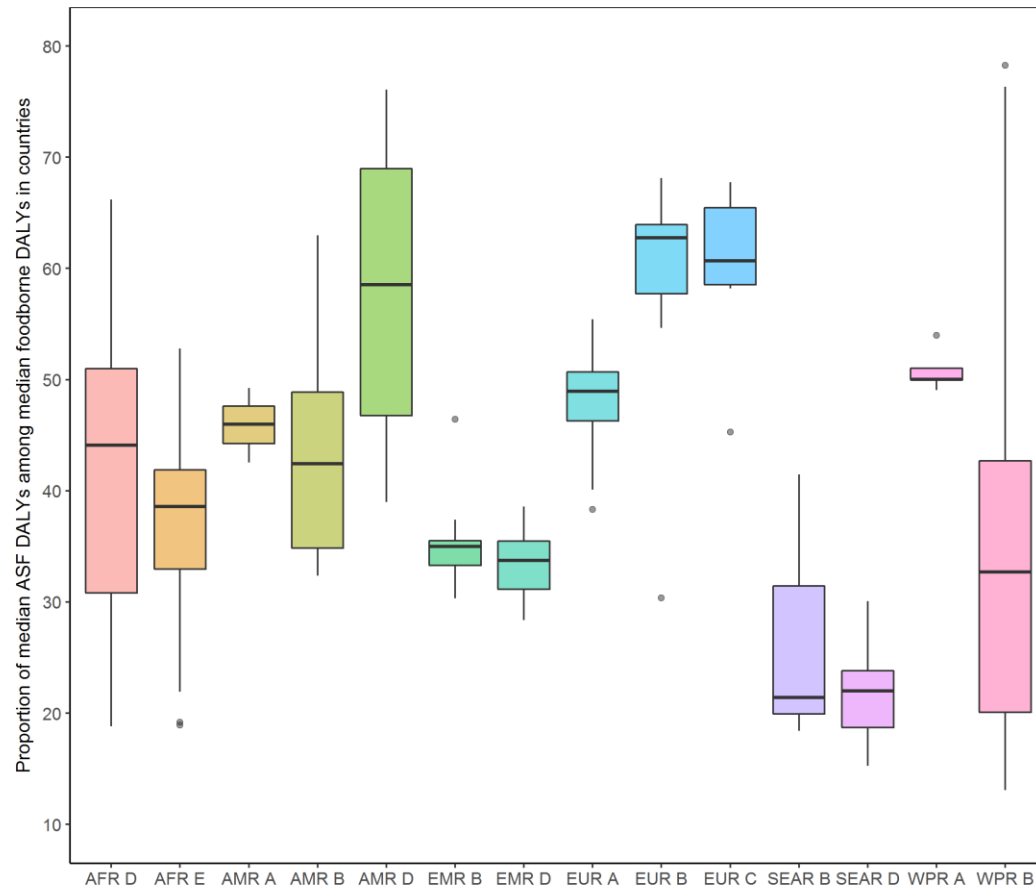
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## ASF PROPORTION OF FBD IS HIGHLY VARIABLE



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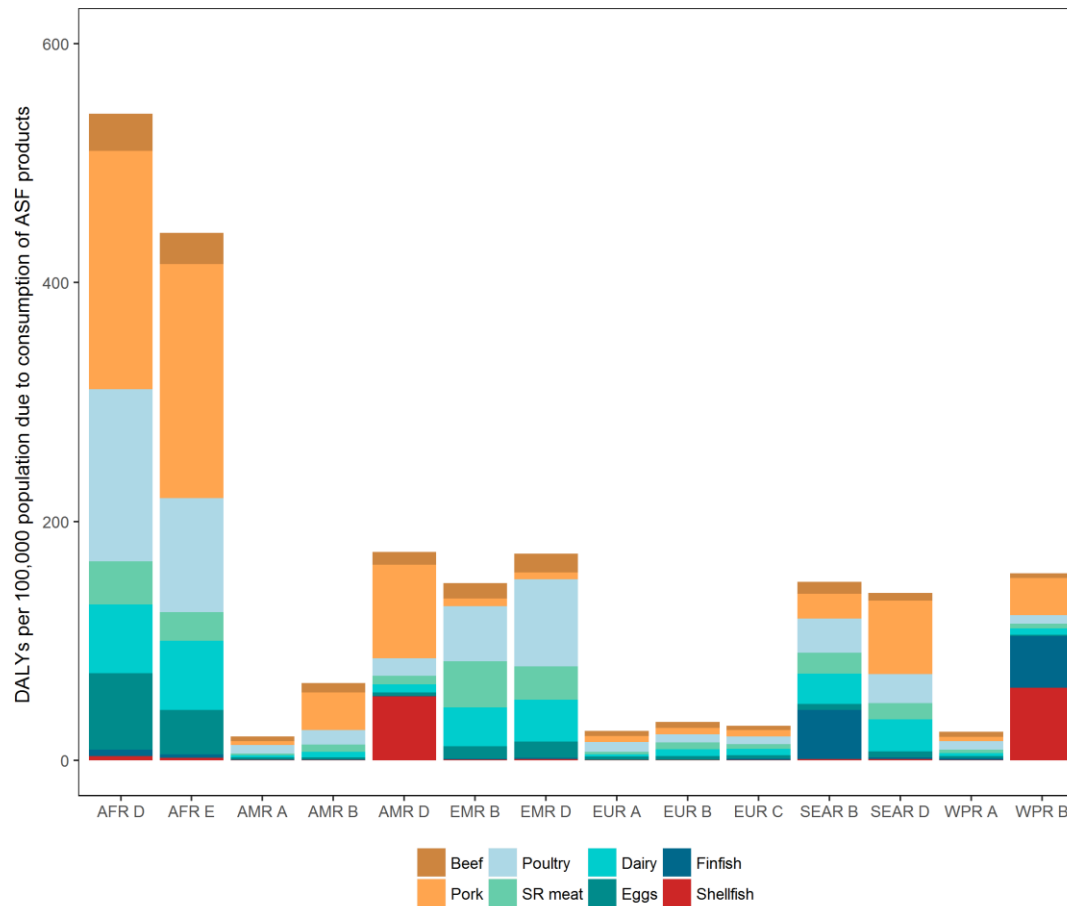
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## DIFFERENT ASF GROUPS CONTRIBUTE TO THE BURDEN IN DIFFERENT REGIONS



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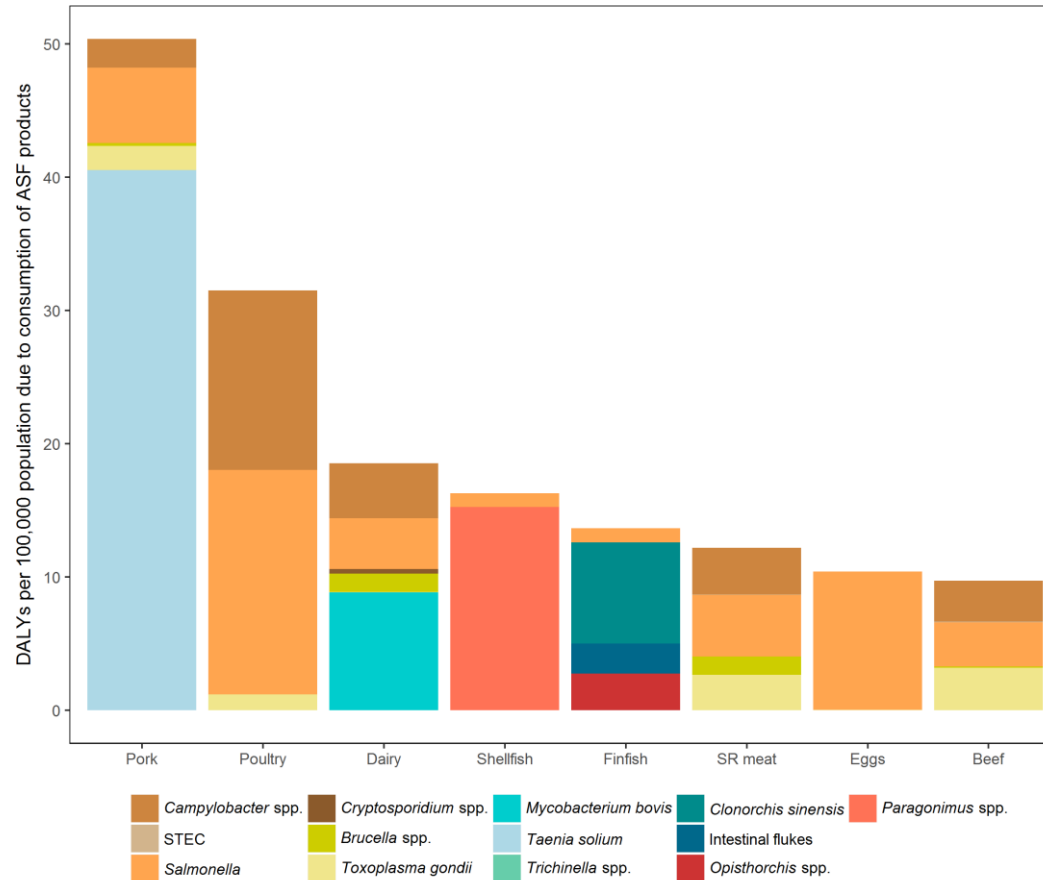
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## DIFFERENT PATHOGENS CONTRIBUTE TO THE BURDEN OF ASF GROUPS



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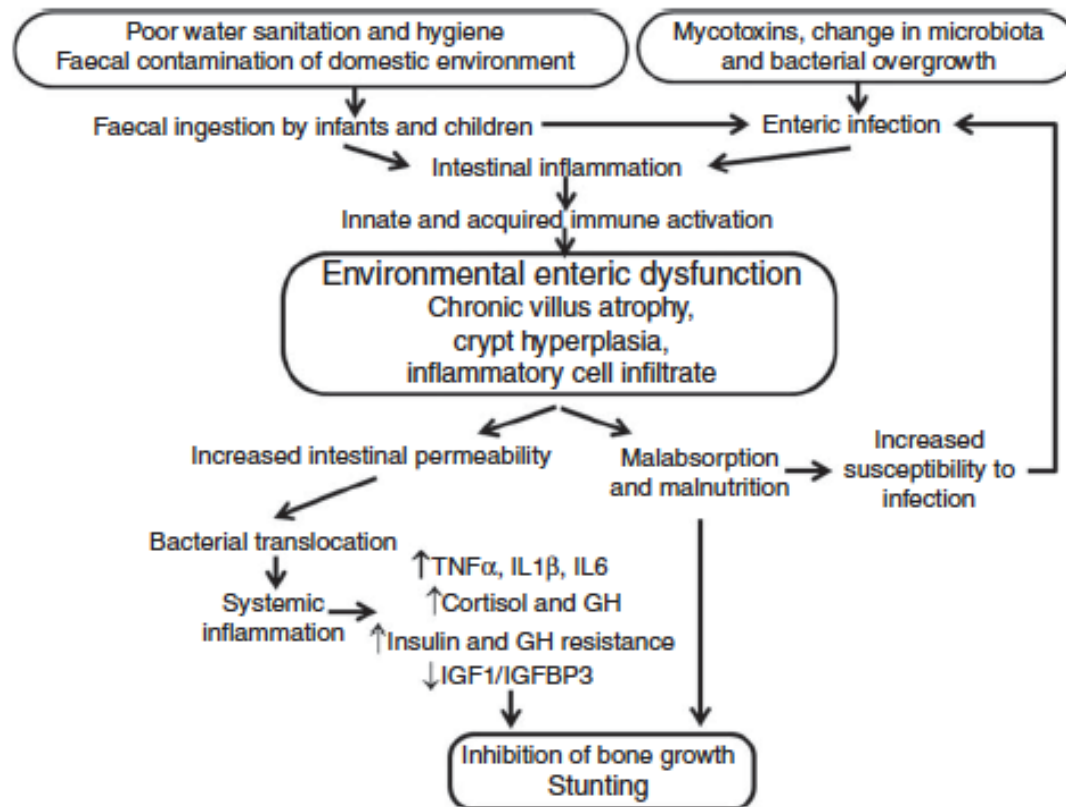


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## THE UNCHARTED BURDEN: PATHOGENS AND STUNTING





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## ASF BURDEN IN NEGATIVELY CORRELATED WITH CONSUMPTION

## ASF CONSUMPTION AND BURDEN CORRELATE WITH INCOME

*Preliminary data was shared at the symposium but cannot be shared publicly at this point*



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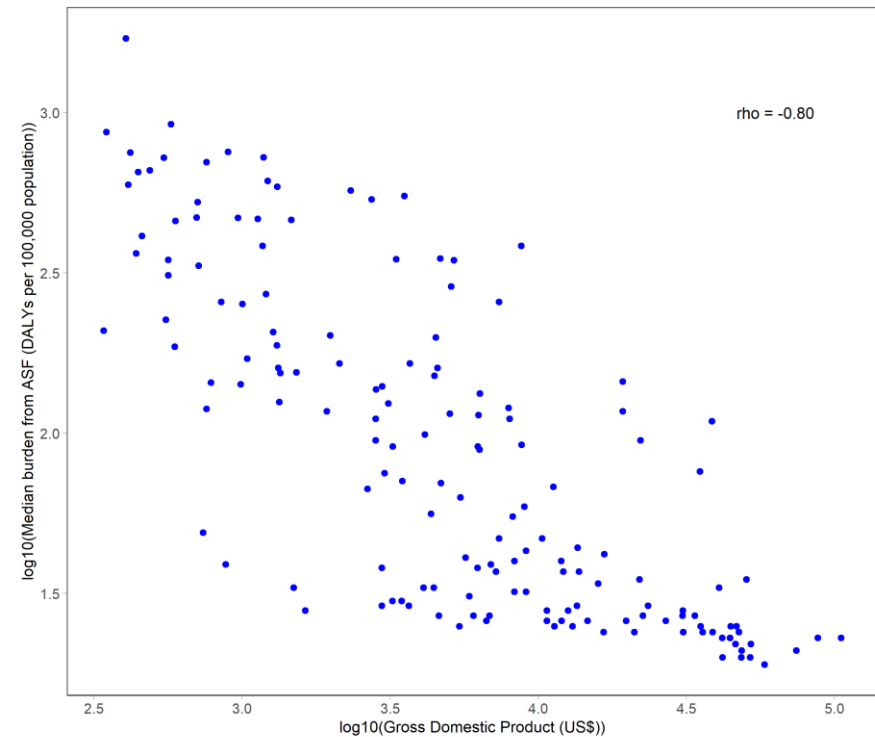
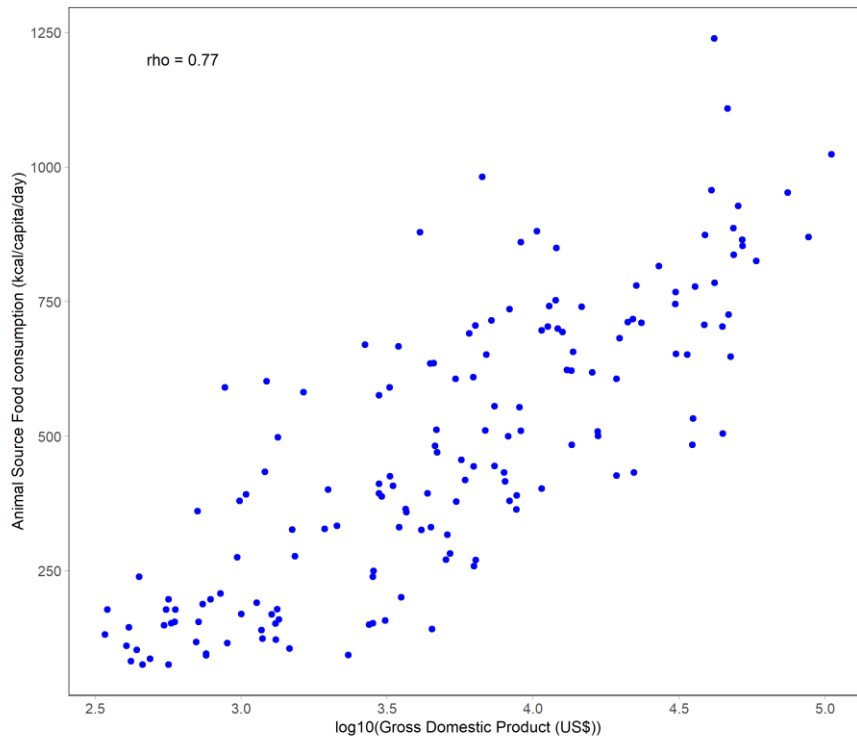
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## ASF CONSUMPTION AND BURDEN CORRELATE WITH INCOME



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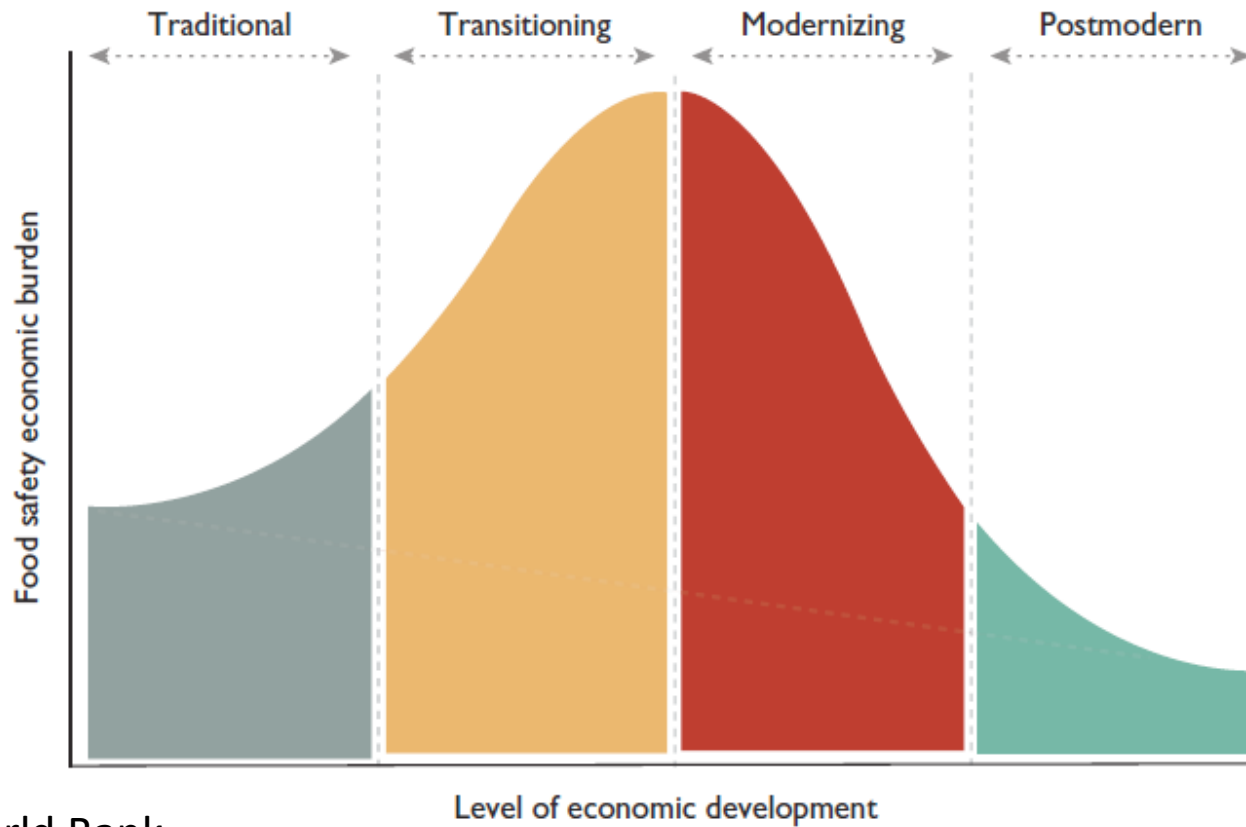
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## FOOD SAFETY LIFE CYCLE



Source: World Bank



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7 June 2019

**World Food  
Safety Day**

**#WORLDFOODSAFETYDAY**

[www.fao.org/world-food-safety-day](http://www.fao.org/world-food-safety-day)  
[www.who.int/foodsafety](http://www.who.int/foodsafety)

**Food safety,  
everyone's business.**



1. Ensure it's safe - Governments must ensure safe and nutritious food for all
2. Grow it safe - Agriculture and food producers need to adopt good practices
3. Keep it safe - Business operators must make sure food is safe
4. Check it's safe - All consumers have a right to safe, healthy and nutritious food
5. Team up for safety - Food safety is a shared responsibility



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# EXAMPLES OF FOOD SAFETY PROJECTS AS PART OF THE FEED THE FUTURE INNOVATION LAB FOR LIVESTOCK SYSTEMS



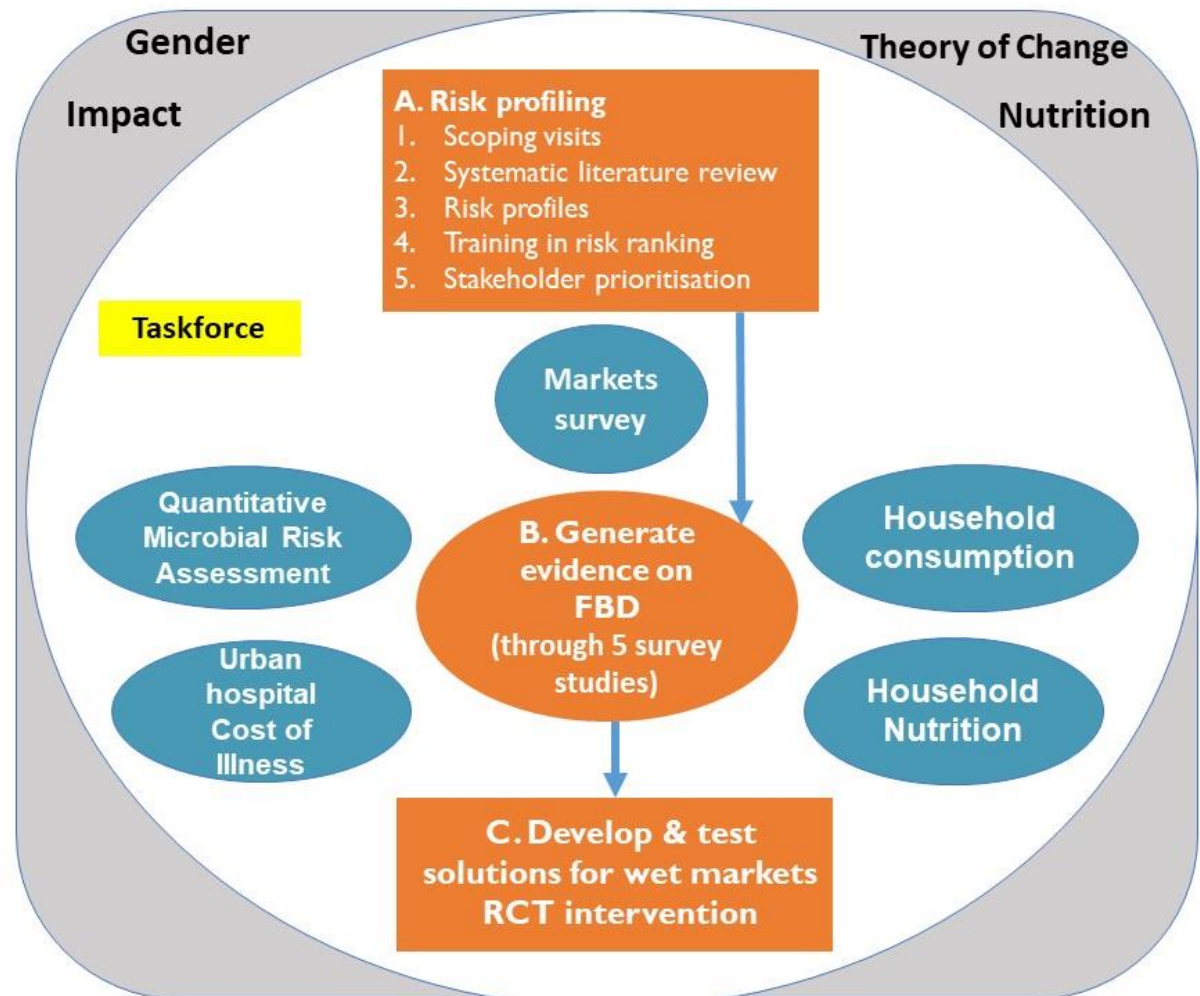
## SAFE FOOD FAIR FOOD CAMBODIA

### Lead Institution:

International Livestock  
Research Institute (ILRI)

### Collaborator Institutions:

- National Animal Health and Production Veterinary Research Institute
- Centre for Livestock and Agriculture Development (CeAgrid)
- Emory University





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## NATIONAL SURVEY

- *Salmonella* and *S. aureus* in pork, chicken meat and on cutting boards
- Traditional markets in 25 provinces of Cambodia
- Urban focus: Phnom Penh municipal and Siem Reap province
- *Salmonella* prevalence 12-76%;  
(detailed analysis forthcoming, cannot be share at this point)



Dr. Delia Grace, Dr. Hung Ngyen Viet  
ILRI



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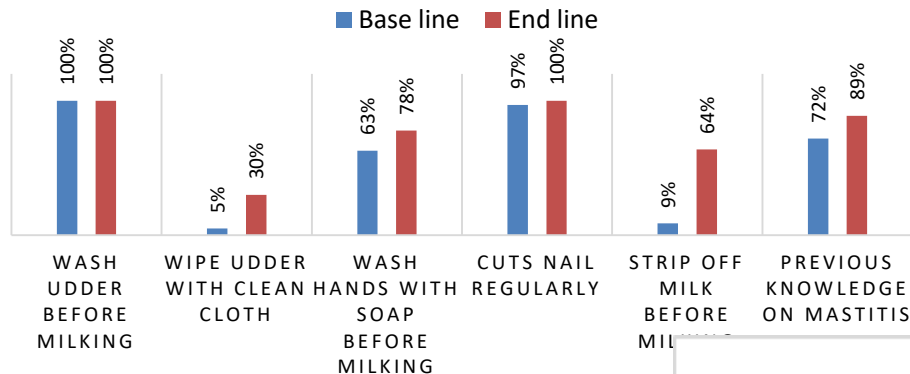


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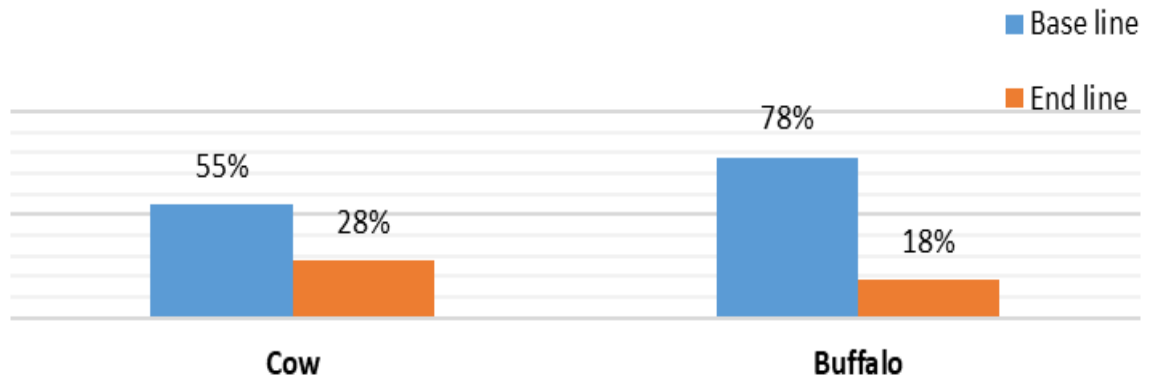
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## EMPOWERING FARMERS: MASTITIS CONTROL IN NEPAL

Adoption of Good Husbandry Practices



Prevalence of sub-clinical mastitis in dairy animals



Dr. Keshav Prasad Sah  
Heifer International Nepal



## CONCLUSIONS

- The global burden of unsafe foods is substantial
- Low- and middle-income countries have the highest burden
- Animal-source foods contribute ~ 35% to this burden
- Priority ASF groups and pathogens vary by country
- Governments and food chain actors need evidence on the burden of unsafe foods and best practices to improve food safety governance
- There is an increasing momentum among policymakers and donors to support food safety globally
- LSIL contributes to improving the evidence base for safer foods in target countries



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Attribution experts

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IHME, Seattle, WA

ECDC, Solna, Sweden

Stakeholders

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Questions?





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[www.feedthefuture.gov](http://www.feedthefuture.gov)



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