Pathways to Human Nutrition:
Living with Livestock

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BACKGROUND
WHY LIVESTOCK FOR NUTRITION

• USAID Feed the Future Livestock System Innovation Laboratory
• Growth in agriculture yields greater reduction in nutritional stunting than other economic growth (Webb and Block, 2012).
• Livestock holders are more likely than counterparts to consume AFS (FAO, 2009).
• Significantly food and nutrition insecure households are those who rely on agriculture for their livelihood (World Bank 2007; World Bank 2013).
• 155 million children under five suffer from chronic malnutrition (FAO, 2017).
NUTRITION

- UNICEF 1990 Conceptual Framework of Young Child Nutrition
- Complex drivers of malnutrition
- Significant role of agriculture
LIVESTOCK → NUTRITION

UNICEF Immediate causes

UNICEF Underlying causes

Nutrition

Dietary intake

Disease

HH food security
Care and feeding practices
HH Environment and health services

Livestock Production System

Food production
Income generation
Women’s empowerment
LIVESTOCK → NUTRITION

Livestock to improve nutrition

- Household consumption of ASF foods (Iannotti et al., 2017)
- Incomes to purchase enough food of nutritional quality (IFPRI, 2017)
- Resilience, livelihood diversification in the face of CC (Jones and Thornton, 2009)
- Women’s control over assets and income (Jin and Iannotti, 2014)
Evidence of some risk

- Increased risk of environmental enteric dysfunction from animal husbandry, specifically chickens (Headey, 2016; Mosites et al., 2015)
- Increased vulnerability of livestock holders to food insecurity during shocks due to terms of trade meat/grain (Nori et al., 2008)
RESEARCH QUESTIONS EMERGE

1. How can we maximize the benefit of livestock for nutrition while minimizing the risks?
2. How do the Ag -> Nutrition pathways differ across contexts?
3. What are the implications for livestock research and development?
NUTRITION PATHWAYS ACROSS LSIL COUNTRIES

- Burkina Faso
- Niger
- Ethiopia
- Uganda
- Kenya
- Rwanda
- Nepal
- Cambodia
PATHWAY ANALYSIS

• LSIL Innovation Platform meetings highlighted certain issues/pathways by country
  – Example, discussions of income in Niger
• Review of secondary literature illustrates success/failures/potential of interventions in certain pathways by country
• Review of indicators for income, women’s empowerment, and production by country
UNDERSTANDING PATHWAYS BY COUNTRY

• Pathway selection:
  – **Income** in Niger
  – **Production** in Ethiopia
  – **Empowerment** in Nepal
INCOME IN NIGER

• Widespread severe poverty and large livestock sector, including pastoral populations

• Water as limiting resource

• Climate change and shifting terms of trade between livestock holders (of whom many are pastoralists) during climate crisis
  – Liquidation of livestock at near-grain prices to produce income for food purchase during crisis
PRODUCTION IN ETHIOPIA

• Limited production affects nutrition directly (limited auto-consumption of ASF) and indirectly (livelihoods and income)
PRODUCTION IN ETHIOPIA

- Auto-consumption constrained by cultural norms and taboos
- Livelihood and income constrained by animal health, production management, and livestock policy
WOMEN’S EMPOWERMENT IN NEPAL

- Women’s empowerment as a pathway to improved nutrition in Nepal interacts with other mechanisms of exclusion, including:
  - Geography (access to land and markets)
  - Age (which children are buffered from crisis)
  - Ethnicity (influence of Hindu rules on Janajatis)
  - Caste (greater restriction on movement and less dietary diversity)
IMPLICATIONS OF PATHWAY ANALYSIS ON INTERVENTIONS

- Niger - income generating, livelihood resilience programming, index based livestock risk insurance

- Ethiopia - Behavior change and communication, Innovative feed development, community animal health workers, WASH interventions to limit zoonotic disease

- Nepal - Improve understanding of decision making, local perception of empowerment
Livestock is an opportunity to improve livelihoods and nutrition, with inherent risks.

- *What is the role of livestock excreta on child nutrition? (Is the risk of livestock greater than the benefit to HH, in what cases?)*

- ASF plays an important role in proper child development and nutrition.
  - *At what price does the benefit of eating ASF produced at household outweigh the benefit of sale?*
  - *How much of child malnutrition globally is driven by cost of ASF?*

- Behavior change remains a major barrier to improving child nutrition.
  - *How can we identify communities where behavior change is sufficient to changing diets? Who are these communities/households?*
REFERENCES

- Herforth, A., & Harris, J. (2014). Conceptual pathways between agriculture and nutrition. SPRING.