



# FEED THE FUTURE

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



## Focus on Feed: USAID and Bill & Melinda Gates Foundation collaboration on feed research and capacity building

Gbola Adesogan

Feed the Future Innovation Lab for Livestock Systems, University of Florida

Photo credits: LSIL



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# STUNTING

**Definition:** Impaired growth and development (low height for age)

**Caused by:** Poor nutrition and infections

**Stunting in the first 1000 days causes:**

- Poor mental/cognitive ability and educational performance,
- Increased risk of chronic diseases (e.g. diabetes, hypertension, and obesity) in adult life
- Low earning potential and lost productivity,
- Reduces the national GDP by up to 10%

(WHO; World Bank)



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## IMPORTANCE OF ANIMAL-SOURCE FOODS (ASF)

Animal-source foods are the ***best sources of high-quality, nutrient-rich foods*** for children aged between 6 and 23 months (WHO 2017)

### Important nutrients in ASF:

- **Ideal protein** – contain all essential amino acids – vital for growth
- **Bioavailable micronutrients** - vital for skeletal and cognitive / neurological development (Iron, zinc, iodine, vitamins A, B12 and B2, etc.)



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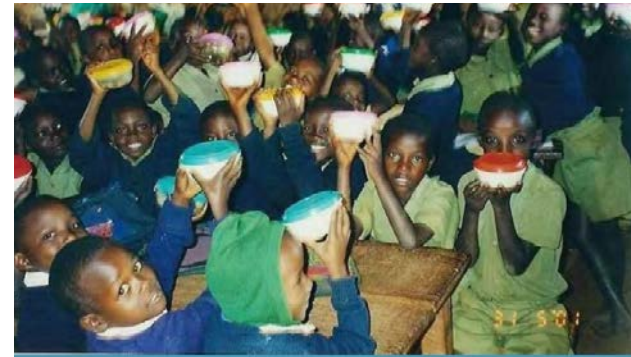
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## EXAMPLES OF THE ASF EVIDENCE

- Adding a little meat or milk to the bean & corn diets of school children, increased their growth and **increased their test scores by 45 and 28%, respectively**

(Hullet et al. 2014)



- Feeding one egg daily to Ecuadorian infants **reduced stunting by 47%**

(Ilanotti et al. 2017)

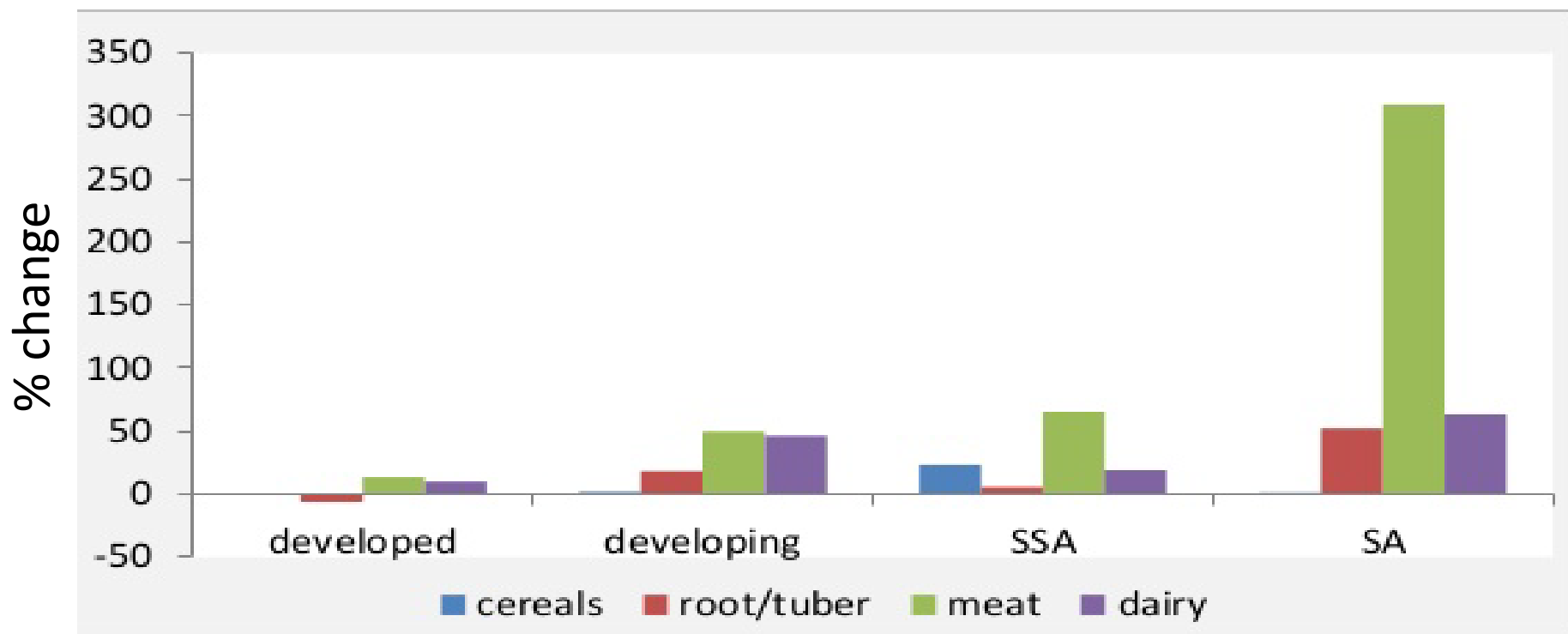




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## CHANGES IN GLOBAL / REGIONAL FOOD DEMAND, 2005-7 vs. 2050



Modified by Staal from Alexandros and Bruinsma, 2012







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## USAID BFS & BILL & MELINDA GATES FOUNDATION COLLABORATION

- Both donors formed a strategic partnership and the Livestock Systems Innovation Lab is their first joint project



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## Feed the Future Innovation Lab for Livestock Systems



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# FUNDS

Funding Source	Amount (US\$ million)
<b>Initial funds</b>	
USAID Leader Award	19
USAID Buy-in Ceiling	10
USAID Associate award Ceiling	20
<b>Additional funds</b>	
USAID Peste des Petits Ruminant Associate Award	2.5







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## VISION

*To sustainably intensify animal-source food production in order to increase the incomes, livelihoods, nutrition and health of vulnerable people.*



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## PRIORITY-SETTING MEETINGS



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## KEY PRIORITY SETTING DEDUCTION

*Lack of adequate supply of quality feed was the **top livestock productivity constraint** in each country!!!*

### Why is feed so important?

- Critical prerequisite for life, growth and productivity
- Determinant of the success of genetic interventions
- Fundamental determinant of immunity and health
- Most expensive component of livestock production (60 to 80% of total costs)



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- Evaluating feed resource availability and quality (Burkina Faso, Niger)
- Testing improved/dual purpose fodder varieties (Ethiopia, Cambodia, Burkina Faso, Niger, Nepal)
- Developing an app for ration formulation (Nepal)
- Assessing mycotoxins in feeds and developing analytical capacity (Burkina Faso, Ethiopia and Rwanda)





## SUB-THEMES OF FEED PROJECTS

- Sourcing protein for guinea fowls from maggots (Burkina Faso)
- Sourcing protein for cows from living fences (Cambodia)
- Formulating balanced rations for dairy cows (Ethiopia, Nepal, Burkina Faso, Niger)
- Using feeds to inhibit gastrointestinal parasites (Burkina Faso)
- Evaluating mineral and other supplements (Burkina Faso, Niger)
- Testing feed processing strategies (Burkina Faso, Niger)

## OTHER RESEARCH THEMES

- **Animal feed** (Ethiopia, Cambodia, Burkina Faso, Niger, Nepal, Rwanda)
- **ASF consumption** (Rwanda, Burkina Faso),
- **ASF markets** (Ethiopia and Nepal)
- **Food safety** (Burkina Faso, Ethiopia, Cambodia, Nepal, Rwanda)
- **Animal disease** (Rwanda, Nepal, Ethiopia, Kenya, Uganda)
- **Enabling policies for livestock** (Ethiopia, Burkina Faso and Niger)



The flowchart illustrates the value chain for livestock products, starting from inputs and services and ending with home consumption. The stages are represented by colored chevron arrows pointing right, with the number of actors or entities at each stage indicated below the arrow. Dashed arrows point from the Production, Marketing livestock, and Marketing livestock products stages down to the Home consumption stage.

Stage	Number	Entities
Inputs and Services	16	<b>Ethiopia:</b> Brown, Merwe, Vipham <b>Rwanda:</b> Maier, Ndahetuye <b>Nepal:</b> Bowen, Mullally, Sah, Shrestha <b>Cambodia:</b> Grace, Tokach, Gill <b>Burkina Faso:</b> Alonso, Baido <b>Niger:</b> Baido, Isso
Production	10	<b>Ethiopia:</b> Smith, Vipham <b>Rwanda:</b> Ndahetuye <b>Nepal:</b> Mullally, Sah, Shrestha <b>Cambodia:</b> Grace, Tokach <b>Burkina Faso &amp; Niger:</b> Baido, Kisaalita
Transport	1	<b>W. Africa:</b> Kiker and Valerie
Marketing livestock	8	<b>Ethiopia:</b> Minten, Vipham <b>Rwanda:</b> Ouma <b>Nepal:</b> Mullally <b>Cambodia:</b> Grace <b>Burkina Faso:</b> Alonso, Baido <b>Niger:</b> Baido
Processing	3	<b>Ethiopia:</b> Amenu, Vipham <b>Cambodia:</b> Grace
Marketing livestock products	2	<b>Ethiopia:</b> Minten <b>Cambodia:</b> Grace
Home consumption	6	





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## BILL AND MELINDA GATES FOUNDATION AWARD (\$8.7 M)

- Subprojects:
  - **FEED**: Improving supply of quality feed for dairy cows in Ethiopia and small ruminants in Burkina Faso
  - **CAGED**: Campylobacter genomics and environmental enteric dysfunction



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# 1. FEED LANDSCAPE ANALYSIS

Objective	Ethiopia Partners	Burkina Partner
To determine the quantities, nutritional quality, prices, variability, availability and accessibility of feed resources at different locations.	Hawassa Univ., ATA	ILRI



## Objectives

To validate the potential of best bet existing and improved fodder varieties for improving dairy cow and small ruminant productivity

To compare forage preservation and crop residue improvement strategies for dry season feeding and increasing performance.

**Ethiopia  
Partners**

EIAR,  
ILRI

## Burkina Partners

ILRI,  
INERA



## 3. IMPROVING FEED RESOURCE USE

Objectives	Ethiopia Partners	Burkina Partners
<p>To estimate critical nutrient requirements of indigenous dairy cows and small ruminants</p> <p>To develop and test ration balancing software for formulating economical balanced rations for cows and small ruminants.</p>	<p>UC Davis, EIAR, Hawassa Univ.</p>	<p>UC Davis, ILRI, INERA</p>

# Objectives

To create a network of NIRS labs that provide affordable and timely feed testing

# Burkina Partners

ILRI,  
INERA,  
Bobo  
Univ.





## 5. SYNERGIZING FEED, GENETICS AND MANAGEMENT INTERVENTIONS

### Objectives

To examine if combining feed and management training with genetic improvement will synergistically increase the milk quantity and quality and health of dairy cows

### Partners in Ethiopia

ACDI  
VOCA,  
Land O'  
Lakes, ILRI



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## TAKE HOME MESSAGES

- Stunting in the first 1000 days causes preventable but irreversible brain damage, reduced educational performance and economic productivity and increased disease incidences
- Animal-source foods are the best source of high quality nutrients for preventing stunting in the first 1000 days
- Lack of quality feed supply is the top constraint to livestock productivity and hence, ASF production



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## TAKE HOME MESSAGES

With USAID and BMGF funds, the Livestock Systems Innovation Lab is

- Developing innovations for increasing quality feed supply to improve ASF production
- Resolving other constraints to animal-source food production, safety, marketing and consumption

Collectively, these efforts will contribute to reduced stunting and poverty and improved resilience among the vulnerable



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



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