



# FEED THE FUTURE

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

# Grow More Food = Better Nutrition?

Applied Research in Low Income Countries  
Seeking to Inform US Aid Policies

Patrick Webb

May 2017



**USAID**  
FROM THE AMERICAN PEOPLE



GERALD J. AND DOROTHY R.  
Friedman School of  
Nutrition Science and Policy



# FEED THE FUTURE

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

A systematic review of agricultural interventions aiming to improve children's nutrition by improving the incomes and diets of the rural poor.

## Systematic review

A systematic review of agricultural interventions that aim to improve nutritional status of children



by Edoardo Masset  
Lawrence Haddad  
Alex Cornelius  
Jairo Isaza-Castro

May 2011



**USAID**  
FROM THE AMERICAN PEOPLE



GERALD J. AND DOROTHY R.  
Friedman School of  
Nutrition Science and Policy



Masset et. al. (2011) report that agricultural interventions have:

- a) Positive impacts on **farm output/productivity**.
- b) “Poor evidence of impact on households’ **net income**.”
- c) “Little evidence...on changes in **diets** of the poor.”
- d) No study assessed **quality of whole diet** (tradeoffs).
- e) 9 studies tested impact on **Vitamin A** (4 were positive).
- f) “**No evidence of impact on stunting, wasting.**”



# FEED<sup>THE</sup>FUTURE

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

“Better understanding of the transmission channels between crop choices and nutritional outcomes should remain a research priority.”

Carletto et al. (2017) *Food Policy*



**USAID**  
FROM THE AMERICAN PEOPLE



GERALD J. AND DOROTHY R.  
Friedman School of  
Nutrition Science and Policy

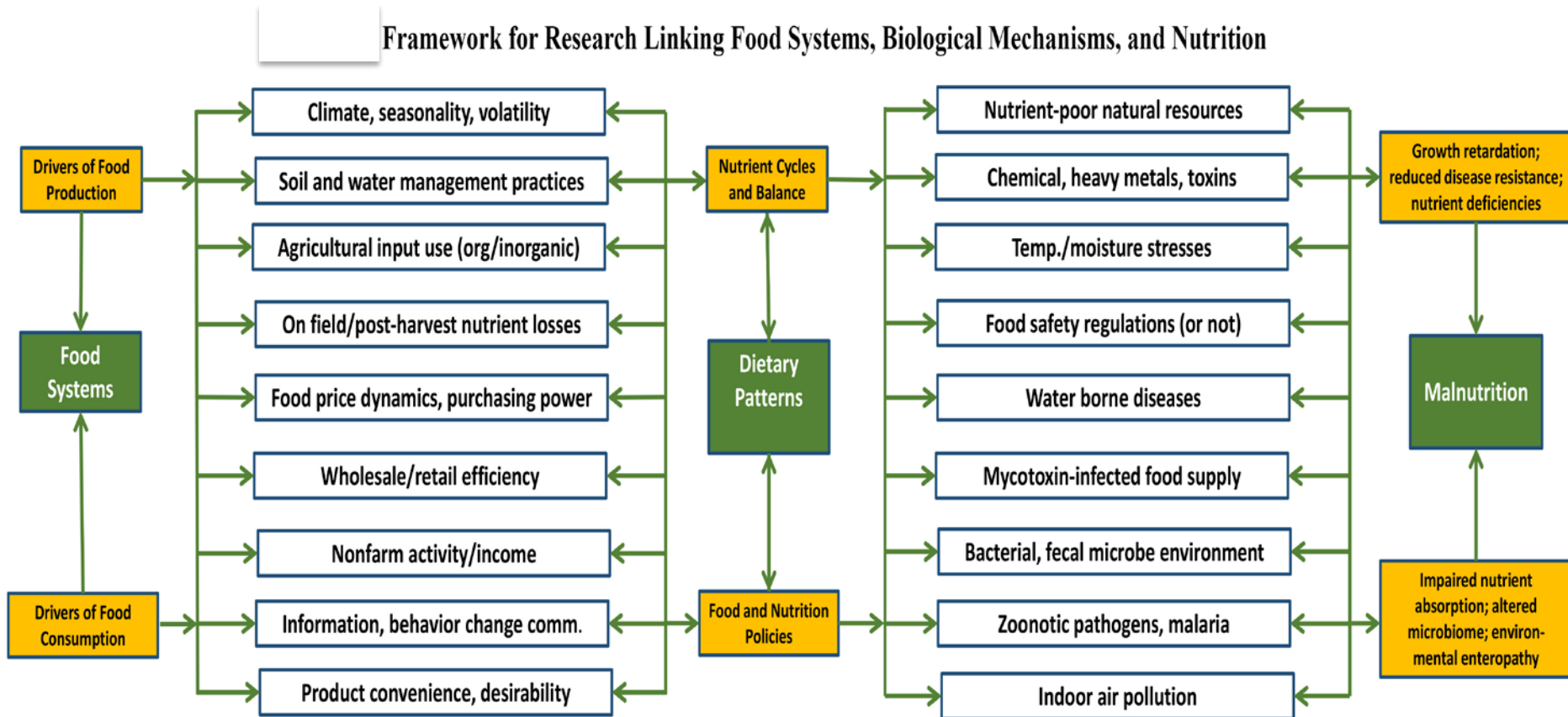
## Core research questions

- What measurable impacts do **investments in agriculture** achieve on nutrition? Can impact **pathways** be **empirically demonstrated**?
- Does **quality of nutrition governance** (political and institutional commitment and capacity) affect effectiveness and impact of nutrition policies and programs?
- What **biological mechanisms** must be better understood when designing interventions to improve nutrition?



# FEED THE FUTURE

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



Source: Authors



**USAID**  
FROM THE AMERICAN PEOPLE



GERALD J. AND DOROTHY R.  
Friedman School of  
Nutrition Science and Policy

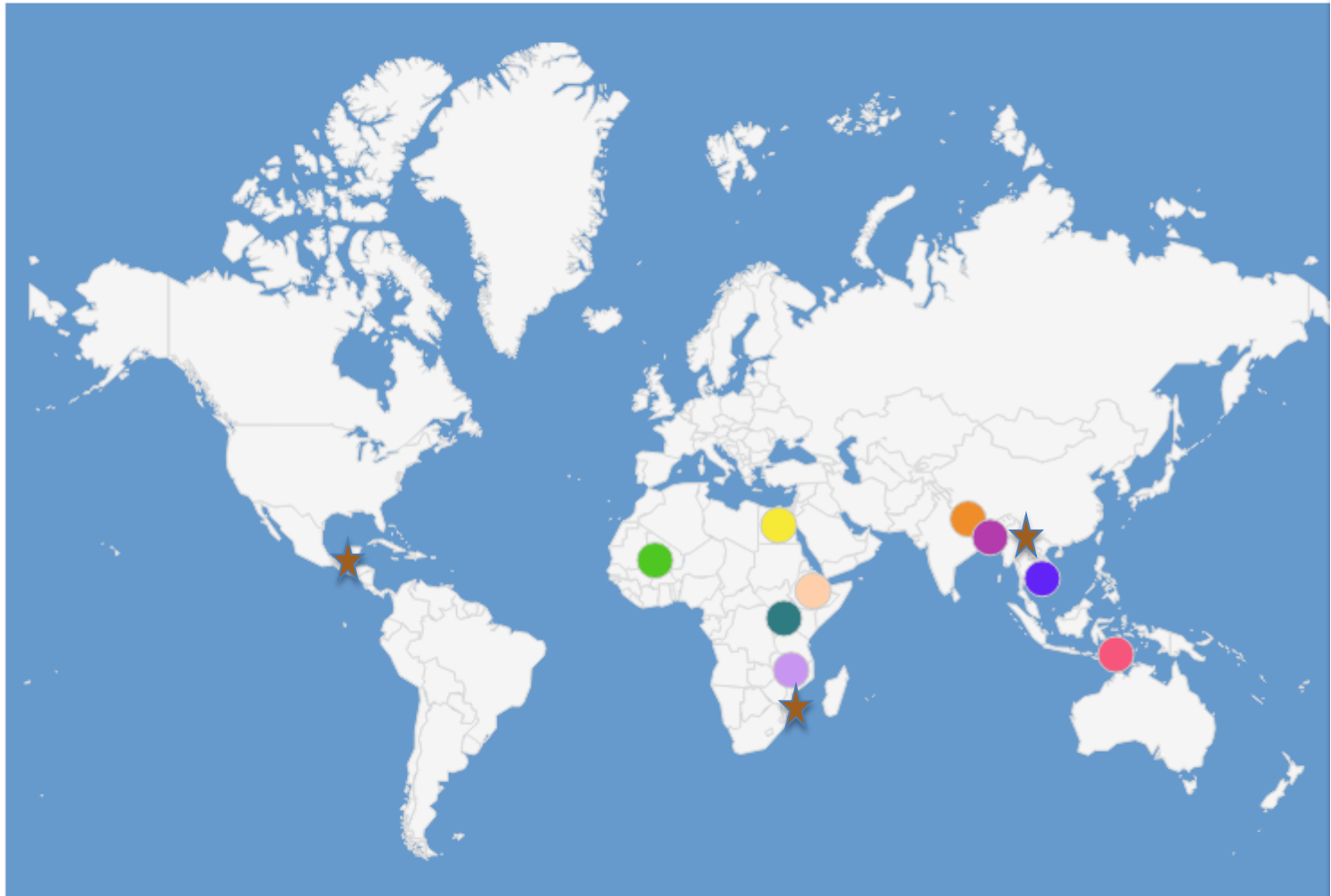


# FEED THE FUTURE

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

[www.nutritioninnovationlab.org](http://www.nutritioninnovationlab.org)

Where We Are

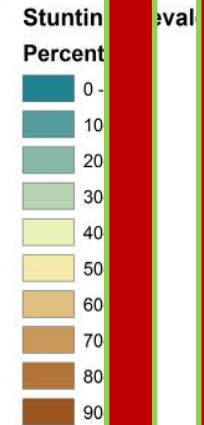




# FEED THE FUTURE

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

**Districts with best  
and least changes in  
stunting 2006-2011**



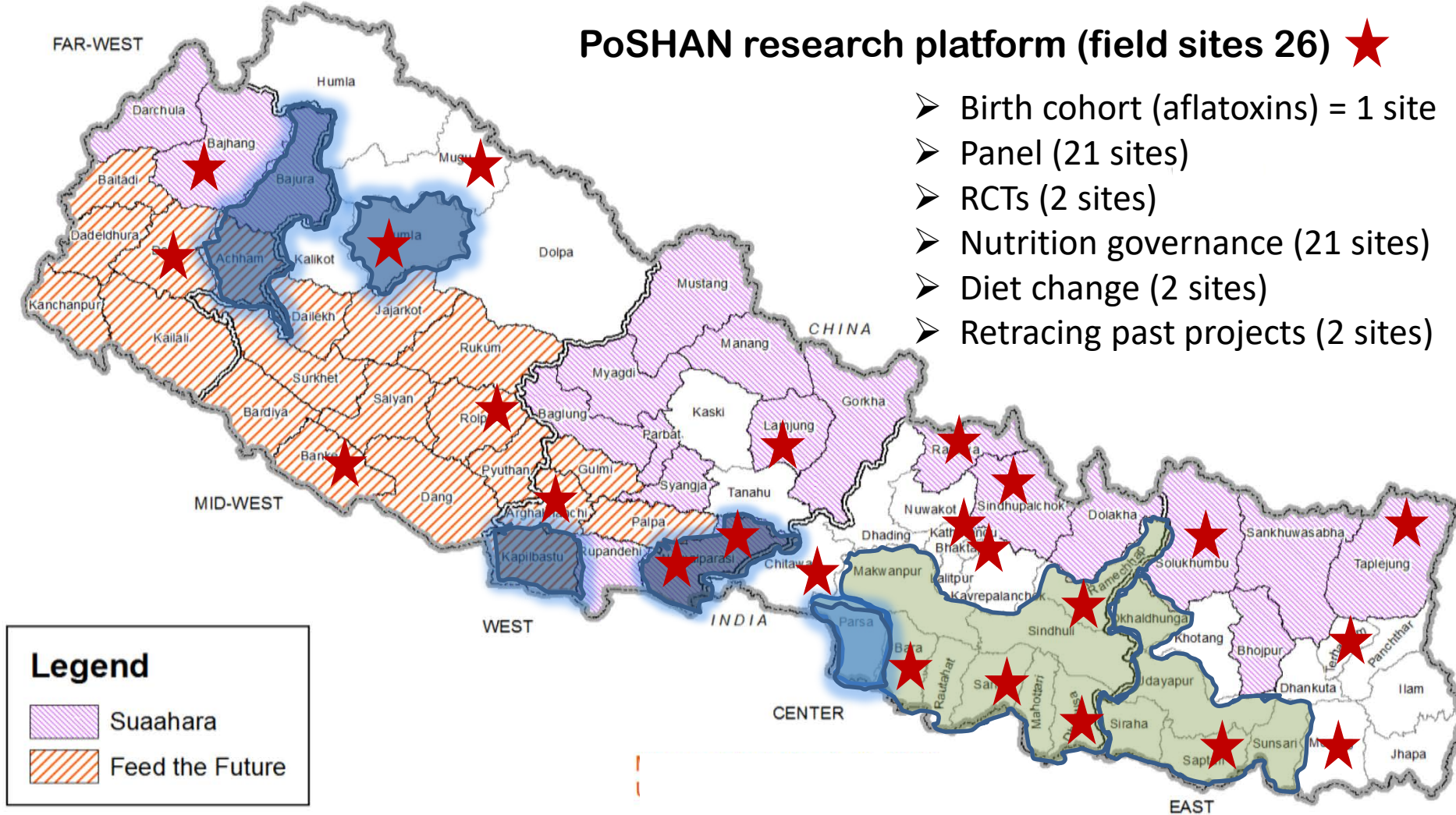


# FEED THE FUTURE

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

## PoSHAN research platform (field sites 26) ★

- Birth cohort (aflatoxins) = 1 site
- Panel (21 sites)
- RCTs (2 sites)
- Nutrition governance (21 sites)
- Diet change (2 sites)
- Retracing past projects (2 sites)



### Legend

- Suaahara
- Feed the Future

- Sunaula Hazar
- Multi-Sector Nutrition Plan



GERALD J. AND DOROTHY R.  
Friedman School of  
Nutrition Science and Policy



# FEED THE FUTURE

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

## Does Agriculture Diversity Matter for Nutrition?

- Low intake of micronutrients seen *even in 'diverse' diets* - key items lacking.
- Diet diversity derives as much from market access as 'production diversity', but production diversity matters where market integration is low.
- High reliance on own output (even if diverse) correlated with higher probability of stunting. Access to off-farm income and markets matters.



**USAID**  
FROM THE AMERICAN PEOPLE



**GERALD J. AND DOROTHY R.**  
Friedman School of  
Nutrition Science and Policy



**High**

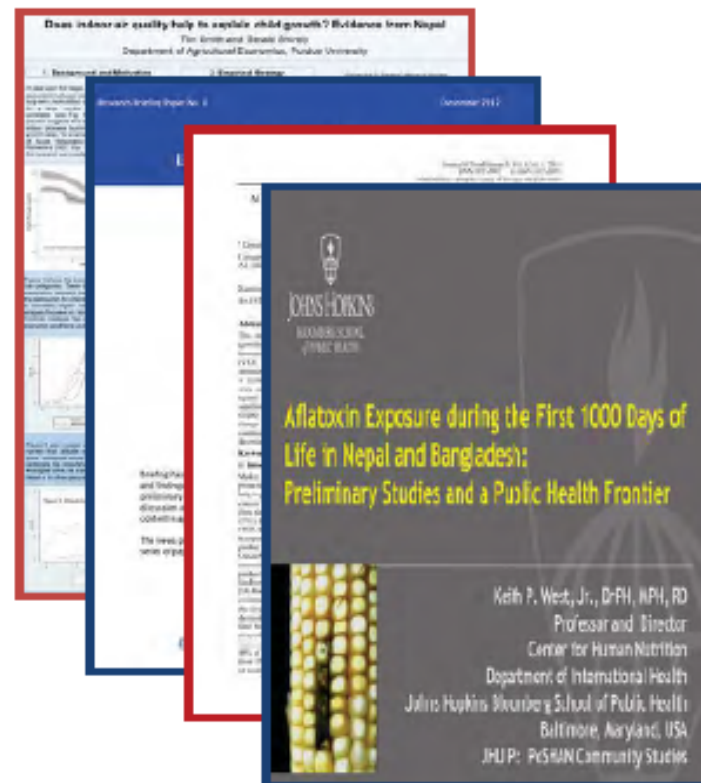


# FEED THE FUTURE

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

## How do Health Threats Impact Nutrition?

- **Air quality.** Smoke impairs child health and growth.
- **Open defecation** – yes (close link with wasting).
- **Food safety/hygiene.** Need technologies as well as behaviors.
- **Mycotoxins.** Suggestive evidence of link to child growth.



**USAID**  
FROM THE AMERICAN PEOPLE



GERALD J. AND DOROTHY R.  
Friedman School of  
Nutrition Science and Policy



The map displays the administrative districts of Uganda. Neighboring countries are labeled: Sudan to the north, Kenya to the east, Tanzania to the south, and Rwanda to the southwest. Lake Albert is located to the west, and Lake Kyoga and Lake Kyoga are in the central-eastern part. Lake Edward and Lake George are in the southwest. A north arrow is in the top left corner. Two red circles highlight specific regions: one in the north (Karamoja) and one in the southwest (southwestern region).



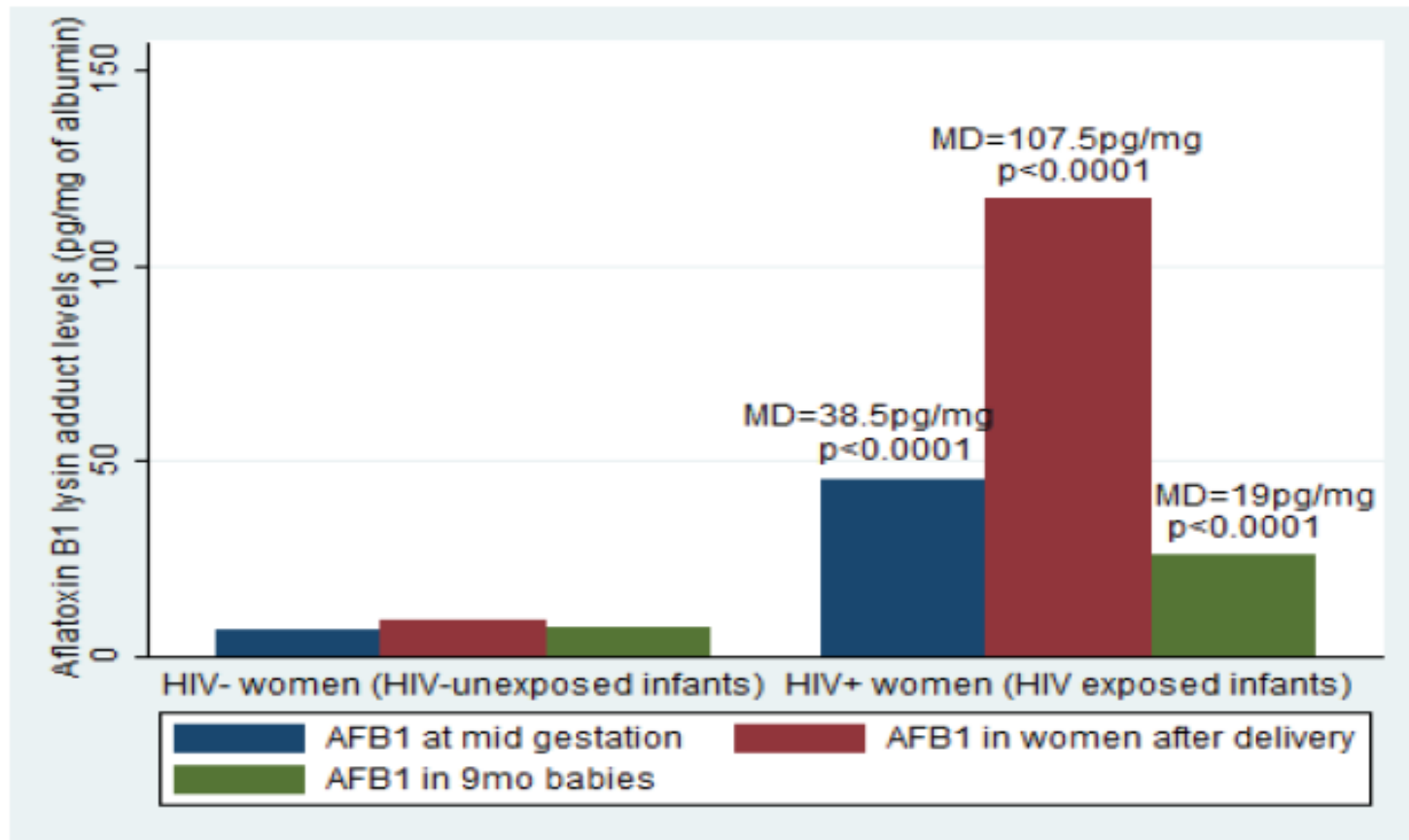


# FEED THE FUTURE

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

## Uganda

### AFLATOXIN LEVELS HIGHER IN HIV (+) WOMEN AND THEIR INFANTS



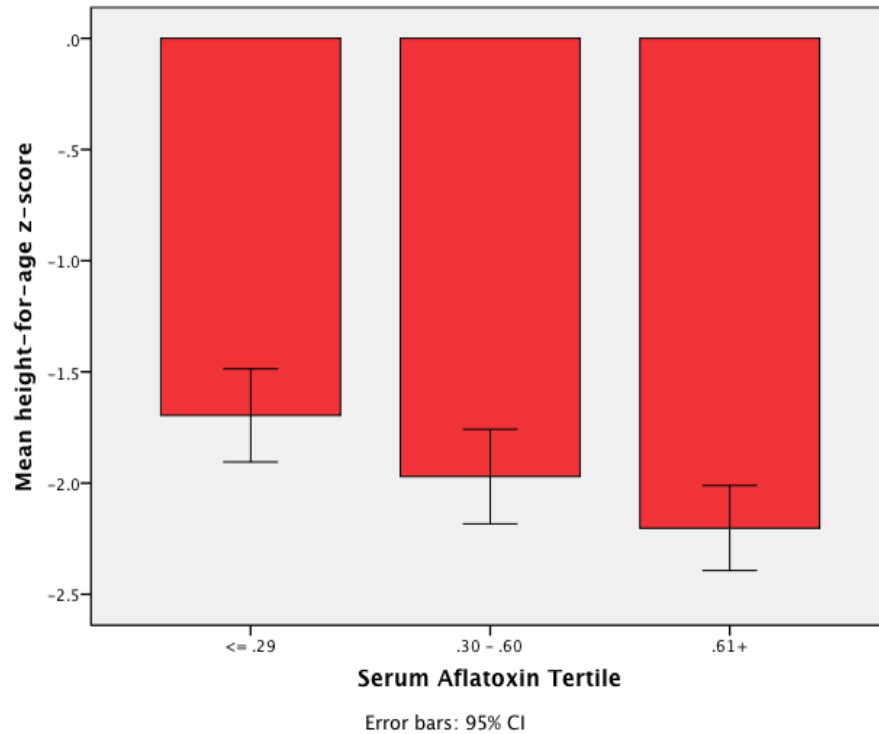
**USAID**  
FROM THE AMERICAN PEOPLE

**Tufts**  
UNIVERSITY

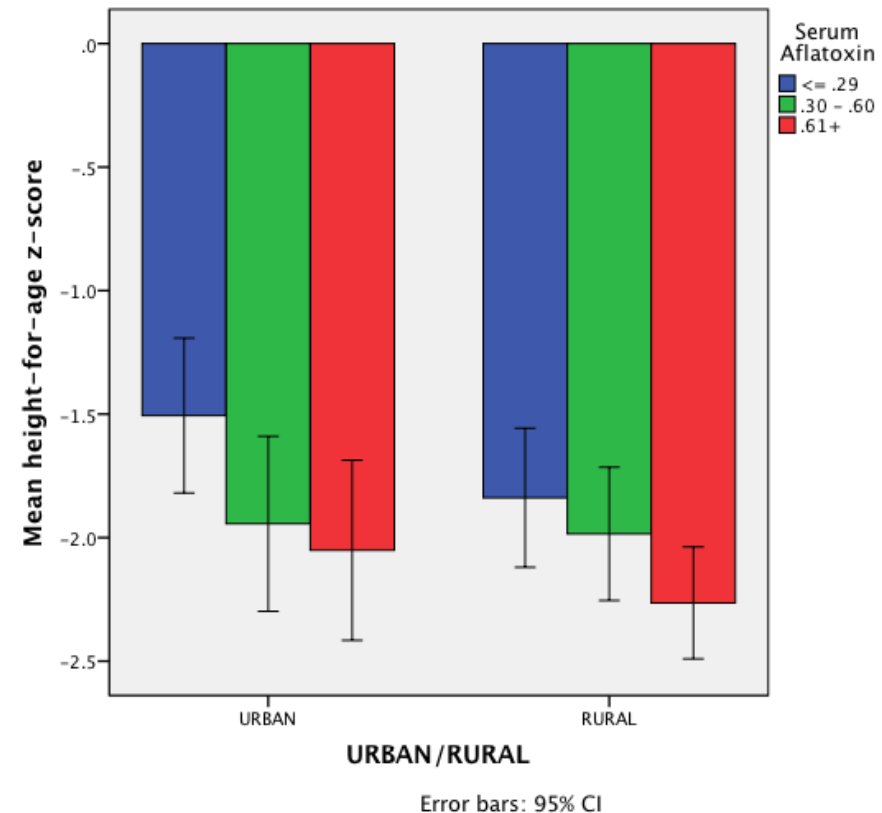
GERALD J. AND DOROTHY R.  
Friedman School of  
Nutrition Science and Policy



### Stunting by aflatoxin levels



### Stunting by aflatoxin levels, urban versus rural





# FEED THE FUTURE

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

## How do Climatic Anomalies Impact Nutrition?

- Timing of pregnancy (mothers' diets) and birth affects later child growth.
- In Nepal, weather anomalies matter more where markets poorly integrated.
- Weather anomalies matter less where livelihoods less agriculture-focused.



GERALD J. AND DOROTHY R.  
Friedman School of  
Nutrition Science and Policy



# FEED THE FUTURE

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

## How Does Integrated Programming Impact Nutrition?

- Nepal: 2 year Heifer intervention showed no change at 24m, but big fall at 48m (wasting). Stunting fell little. Duration of exposure matters
- Ethiopia: children in households in productive safety-net WHZ 0.6 points higher than non-participants – over time. But depends on access to underemployed labor.



**USAID**  
FROM THE AMERICAN PEOPLE

**Tufts**  
UNIVERSITY

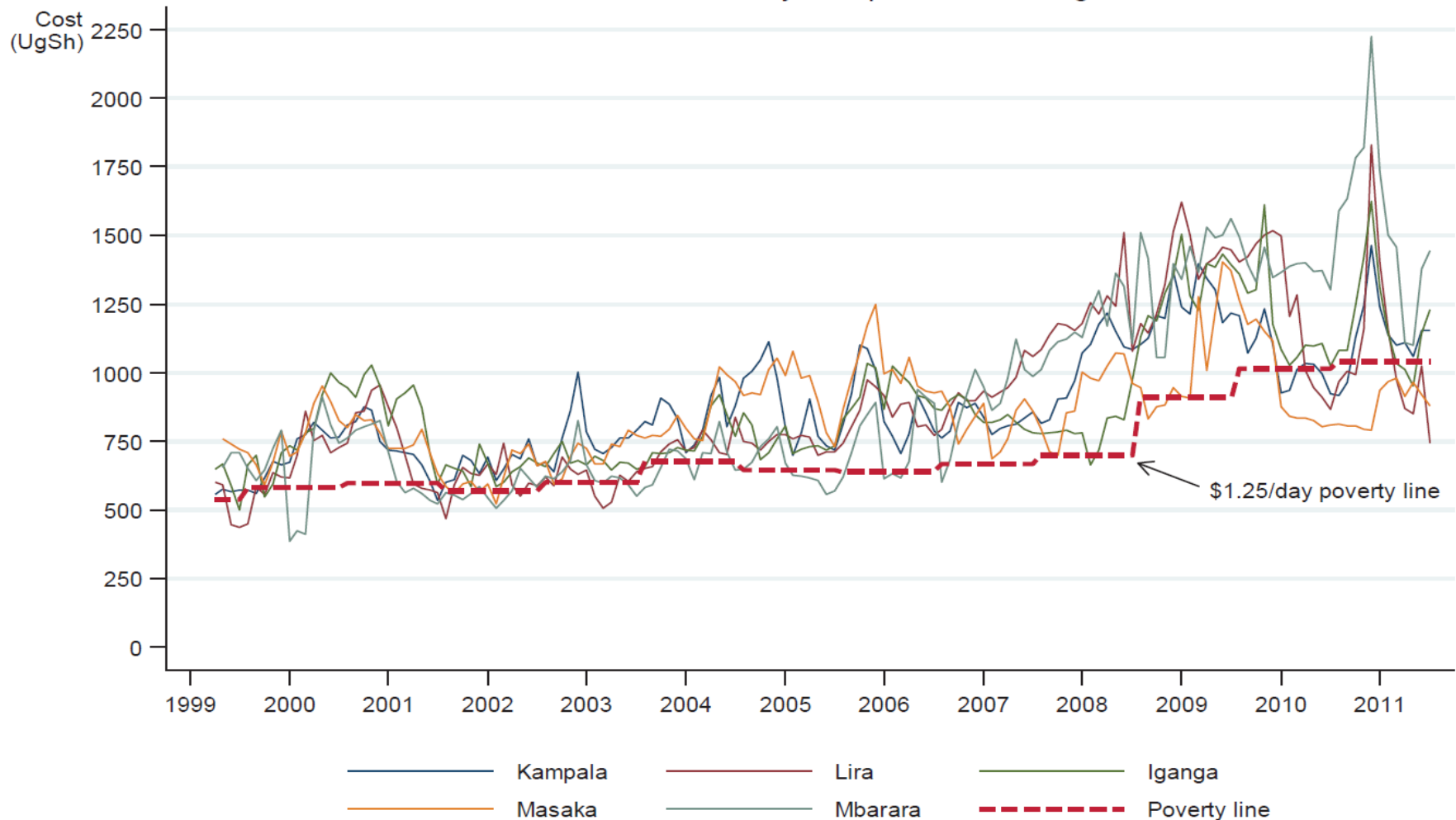
GERALD J. AND DOROTHY R.  
Friedman School of  
Nutrition Science and Policy



# FEED THE FUTURE

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

## Least-cost Nutritionally-adequate Diet for Uganda



Poverty line is based on the World Bank's global poverty standard of \$1.25 a day using PPP GDP (LCU per international \$). Reference group for diet is adult women, using US RDA for 14 nutrients following Hotz et al. (2012). Least-cost monthly food baskets constructed using retail prices for 10 commodities.



## LOOKING FORWARD

### Ongoing and Planned Nutrition Innovation Lab Research

- |                               |                               |
|-------------------------------|-------------------------------|
| ➤ Uganda                      | FTF intervention zones        |
| ➤ Nepal                       | Nationally representative     |
| ➤ Bangladesh                  | FTF intervention zone         |
| ➤ Egypt                       | National double-burden study  |
| ➤ Cambodia                    | Program-specific study        |
| ➤ Malawi                      | National dietary survey       |
| ➤ Ethiopia                    | Program-specific study        |
| ➤ Timor Leste                 | Nationally representative     |
| ➤ Global (secondary datasets) | FTF and high burden countries |
| ➤ Mozambique                  | Aflatoxin-nutrition survey    |



# FEED THE FUTURE

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

## Nutrition Innovation Lab is a Partnership

