



UCD Institute of Food and Health

Smart Science,  
Good Food

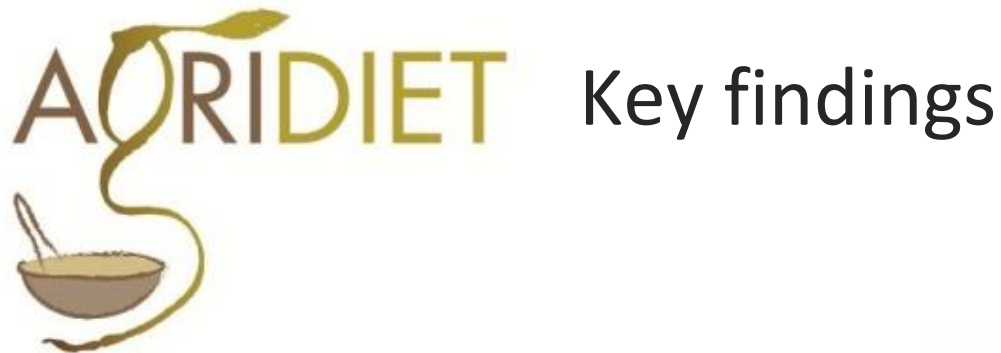
# Personalised Nutrition and Health

Dr. Aifric O'Sullivan



# SDG 2: End hunger, achieve food security, improved nutrition and sustainable agriculture

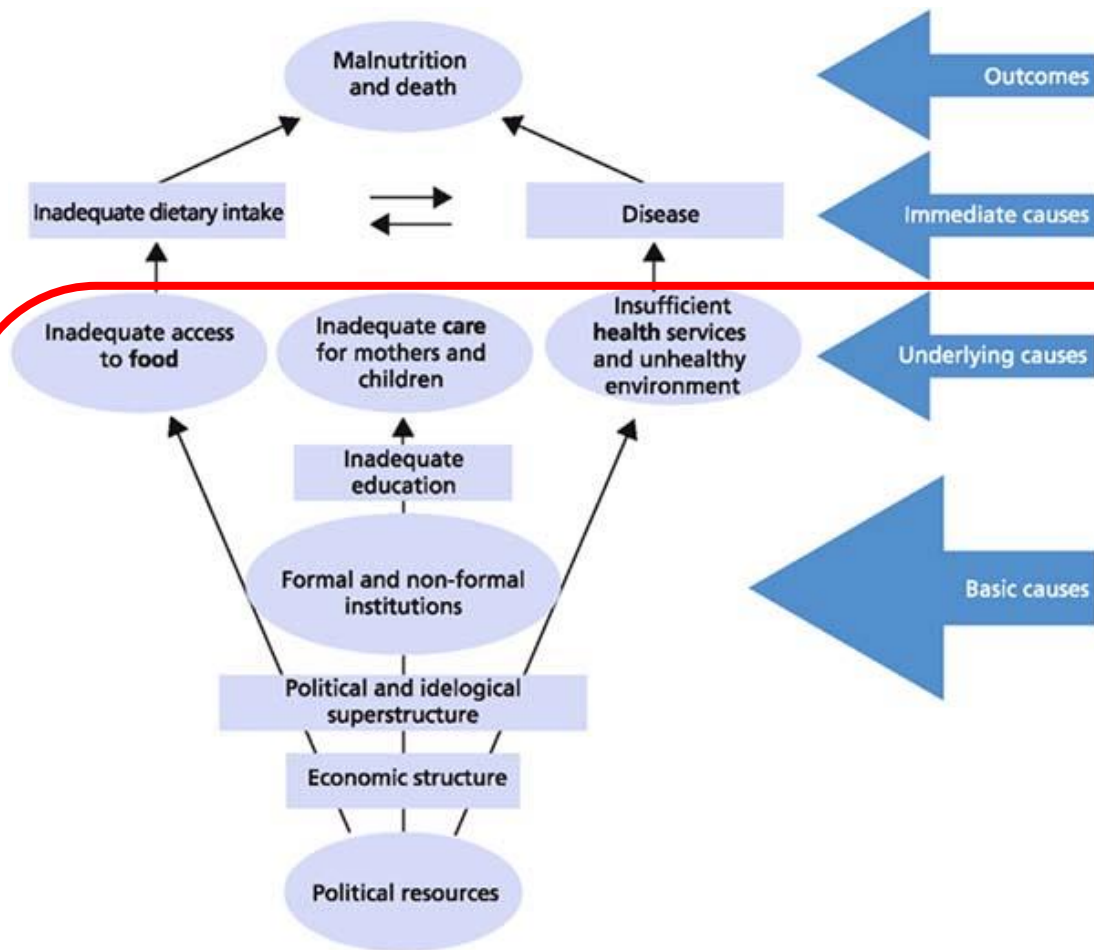
- Agriculture and nutrition



- Future directions
- Link with UCDVO projects



# Malnutrition UNICEF Framework



**Nutrition-specific interventions and programmes** address the immediate determinants e.g. supplementation

**Nutrition-sensitive interventions and programmes** that address the underlying determinants e.g. food security, environment etc.

## Maternal and Child Nutrition 3

Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition?

Marie T Ruel, Harold Alderman, and the Maternal and Child Nutrition Study Group\*

# Agriculture-Nutrition Links

## Panel 3: Pathways by which agriculture can affect nutrition outcomes

- As a source of food: increases household availability and access to food from own production
- As a source of income: increases income from wages earned by agricultural workers or through the marketing of agriculture commodities produced
- Food prices: agricultural policies (national and global) affect a range of supply and demand factors that establish the price of marketed food and non-food crops; this price in turn, affects the income of net seller households, the purchasing power of net buyers, and the budget choices of both
- Women's social status and empowerment: women's participation in agriculture can affect their access to, or control over, resources and assets, and increase their decision-making power regarding intra-household allocation of food, health, and care
- Women's time: women's participation in agriculture can affect their time allocation and the balance between time spent in income generating activities and time allocated to household management and maintenance, caregiving, and leisure
- Women's own health and nutritional status: women's participation in agriculture can affect their health (eg, through exposure to agriculture-associated diseases) and nutritional requirements (eg, through increased energy expenditure); their health and nutritional status can, in turn, affect their agricultural productivity and hence their income from agriculture

## Interventions:

- Home gardens
- Livestock
- Small scale fisheries

## Nutrition outcomes

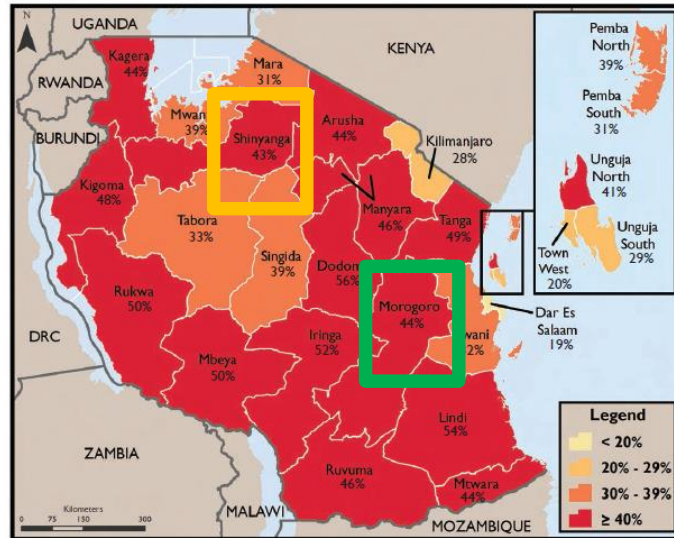
- Anthropometry
- Biomarkers
- Morbidity
- Dietary intake



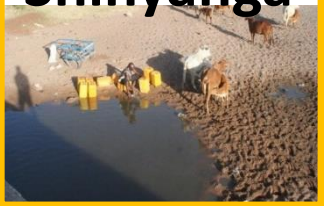
# AgriDiet Project: Ag-Nutrition Links Tanzania

## Stunting in Children

Percent of children under age five who are stunted (too short for their age)



**Shinyanga**



110 pairs

**Morogoro**



110 pairs



## Measurements:

- Household demographics
- Farming practices
- WHO IYCF
- 24-hour recall
- Food security (HFIAS)
- Anthropometrics
  - ~40% Stunted (LAZ)
  - ~15% Underweight (WAZ)
  - ~5% Wasted (WLZ)
- Haemoglobin

# Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access Indicator Guide

## VERSION 3

Jennifer Coates  
Anne Swindale  
Paula Bilinsky

August 2007



**USAID**  
FROM THE AMERICAN PEOPLE

**Food secure:** Rarely worries about not having enough food

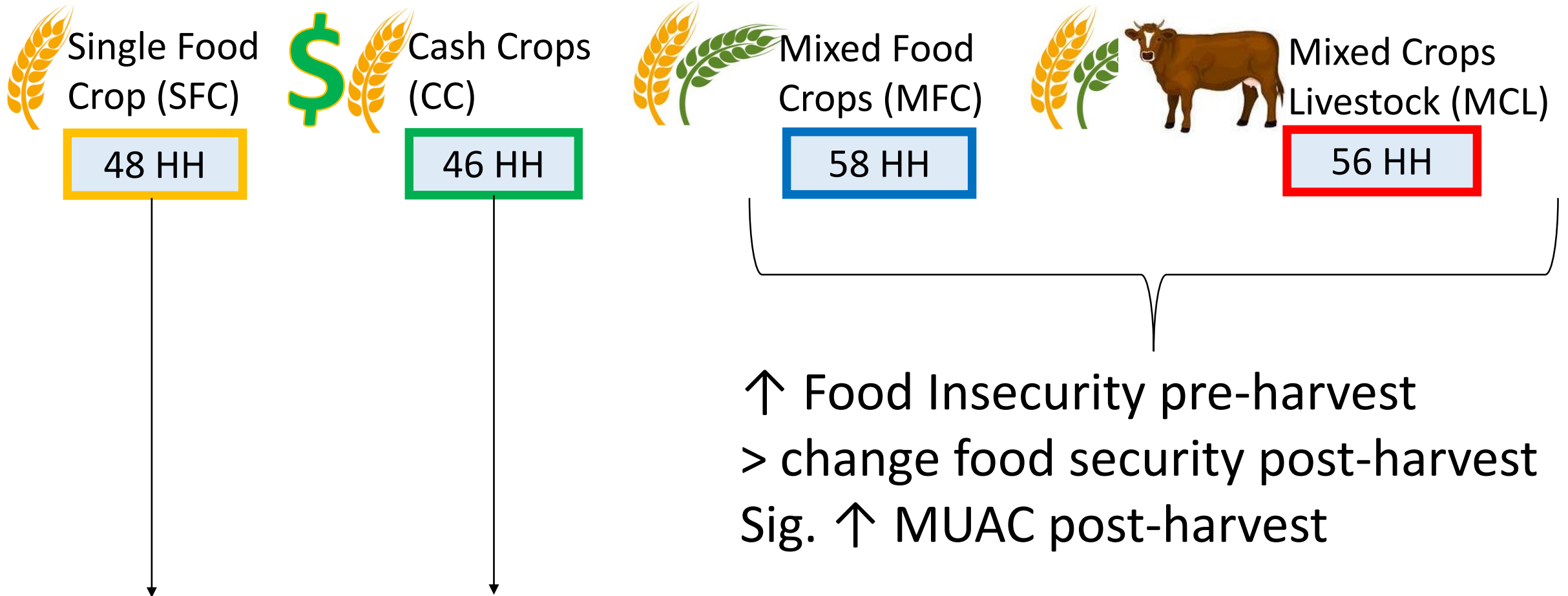
**Mildly food insecure:** Often worries about not having enough food

**Moderately food insecure:** Often sacrifices quality, eats smaller meals

**Severely food insecure:** Going a whole day and night without eating

No	QUESTION	RESPONSE OPTIONS	CODE
1.	In the past four weeks, did you worry that your household would not have enough food?	0 = No (skip to Q2) 1 = Yes	.... __
1.a	How often did this happen?	1 = Rarely (once or twice in the past four weeks) 2 = Sometimes (three to ten times in the past four weeks) 3 = Often (more than ten times in the past four weeks)	.... __

# Farming Systems, Food and Nutrition Security



↑ Food Insecurity pre-harvest  
> change food security post-harvest  
Sig. ↑ MUAC post-harvest

↑ SFC Food Security pre-harvest, but no major change post-harvest  
CC Food Security relatively high pre-harvest and ↑ post-harvest

# Farming Systems, Food and Nutrition Security



Single Food Crop (SFC)

48 HH



Cash Crops (CC)

46 HH



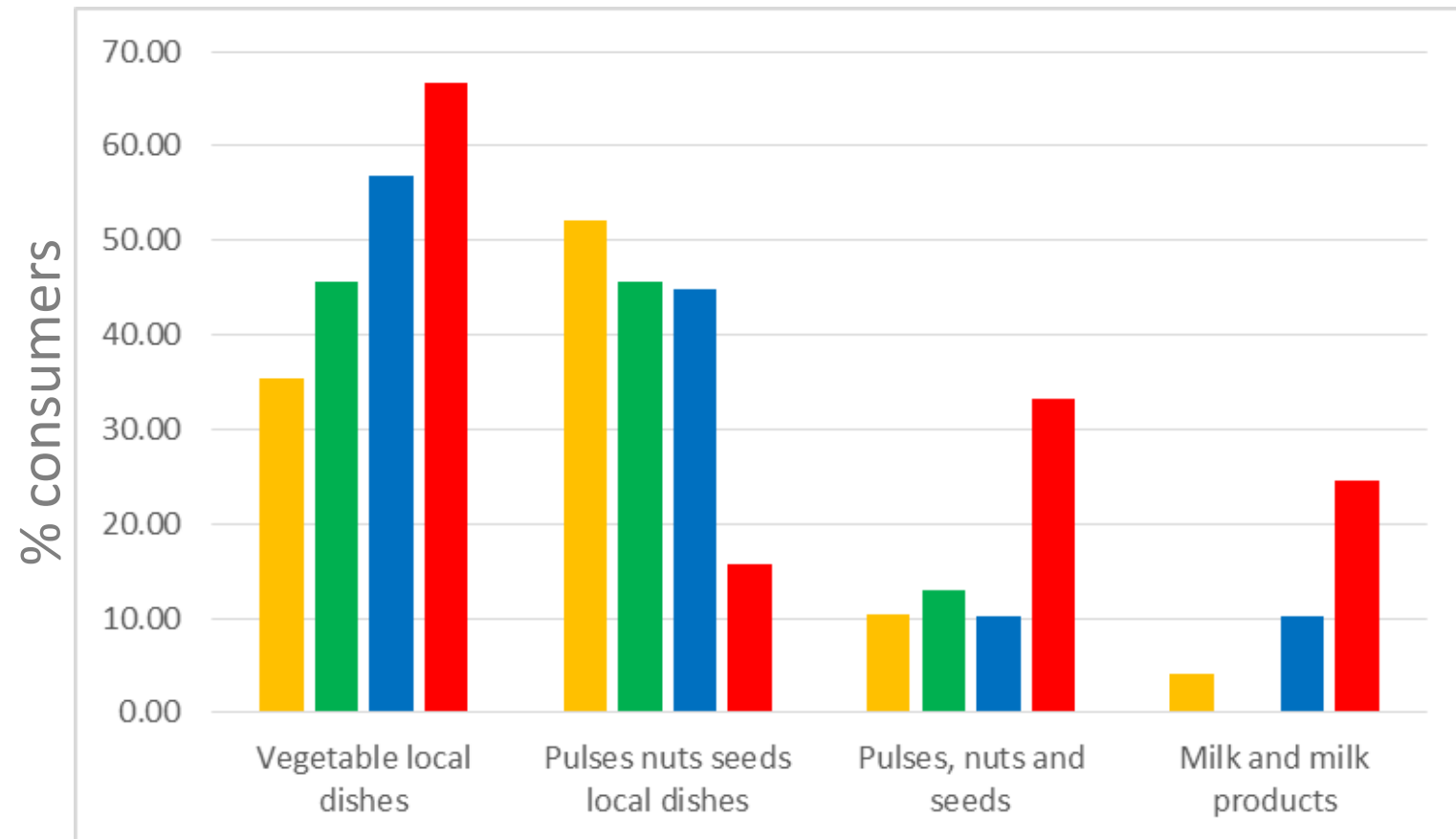
Mixed Food Crops (MFC)

58 HH



Mixed Crops Livestock (MCL)

56 HH



- Poor diet diversity pre-harvest across all farming systems
- Increase % consumers and amounts of foods post-harvest
- MFC and MCL sensitive to seasonal changes
- Shows potential for agriculture interventions (multidisciplinary)



# Translating SDG 2 Research to Practice: UCDVO Project 1



- UCDVO-Kisiizi Hospital Cerebral Palsy Camp
- 20 children and caregiver
- Daily physiotherapy, education and meals
- Stage 1: Assess food/nutrient intakes  
150mL milk per day + meals  
Change in MUAC pre to post
- Stage 2: Increase milk 200mL + 1 egg per day  
Sweet potato instead of potato  
Change in MUAC pre to post



# Translating SDG 2 Research to Practice: UCDVO Project 2



- UCDVO-Kisiizi Community Malnutrition project will support families repeatedly admitted to the malnutrition ward
- Multifaceted intervention:
  - Kisiizi Hospital: demonstration garden
  - Resources: dairy goat, hen, vegetables
  - Support: community education
  - Follow-up: community assessments
  - Monitoring and evaluation

# Take Home Messages

- Response to a challenge (e.g. food availability) or an intervention will depend on numerous inputs.
- The circumstances of each household should be considered when designing interventions and allocating resources.
  - Income
  - Education
  - Household size etc.
- Support and follow-up is essential for sustainability.



# AgriDiet

# UCDVO, Kisiizi Hospital

- University College Dublin
  - Prof Jim Kinsella
  - Dr Deirdre O'Connor
- Sokoine University of Agriculture
  - Prof Amon Mattee, Dr Goodluck Massawe,
  - Prof Joyce Kinabo, Dr Happiness Muhimbula
- St. Augustine University of Tanzania
  - Dr Thadeus Mkamwa, Achilana Mtingele

