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

Animal Source Foods (ASF): Contributions to Food and Nutritional Security

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Photo credit: FAO, ILRI, LSIL

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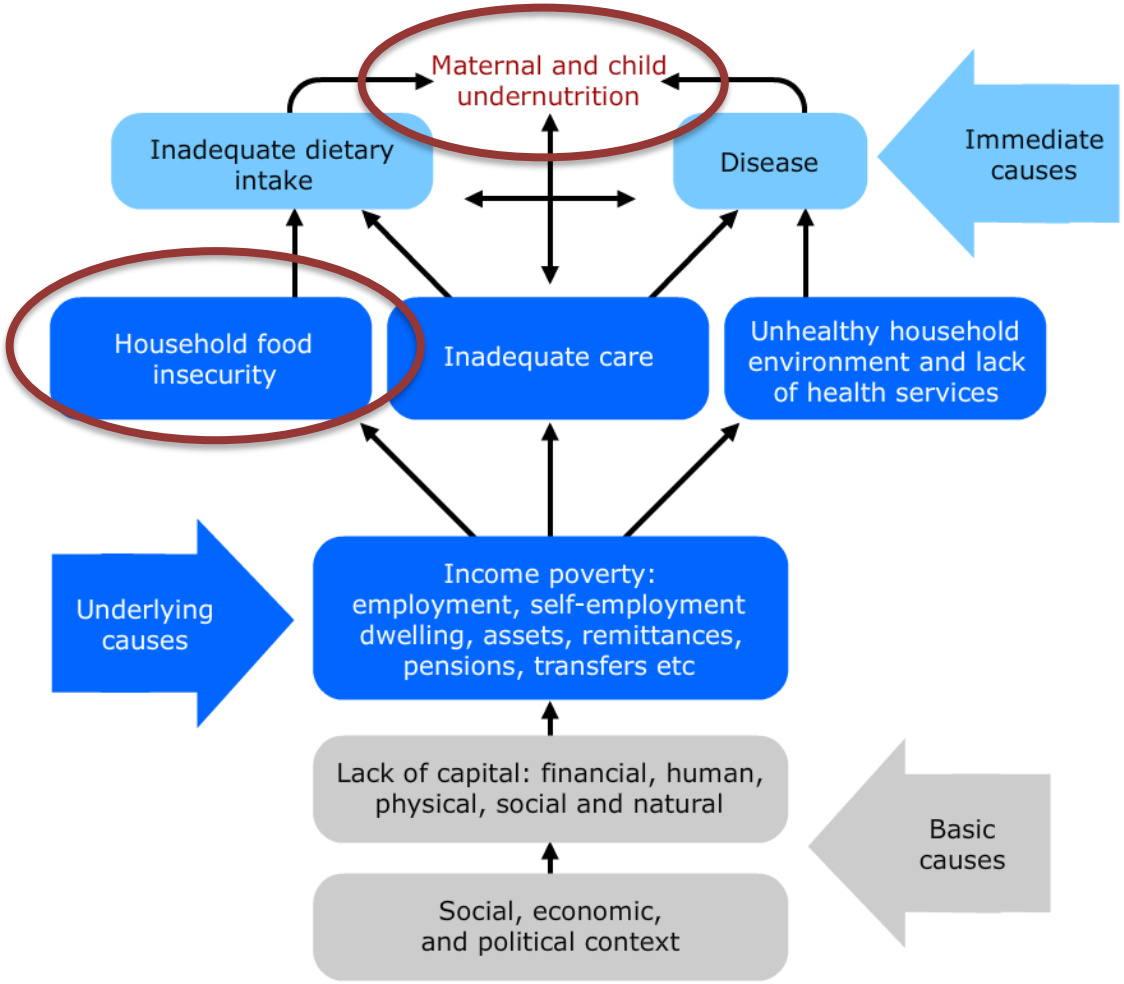
OUTLINE

- Issues
- Animal source foods (ASF) and nutrient security
- Food security and ASF
- Food security and societal norms
- Challenges to livestock for food and nutrition security
  - Food vs. Feed
  - ASF and the environment
- Economic impacts of ASF
- Summary and policy implications

FOOD SECURITY

"The condition in which all people, at all times, have physical, social and economic access to sufficient safe and **nutritious** food that meets their dietary needs and food preferences for an active and healthy life."

- UN Committee on World Food Security



modified by Black et al, Lancet 2008

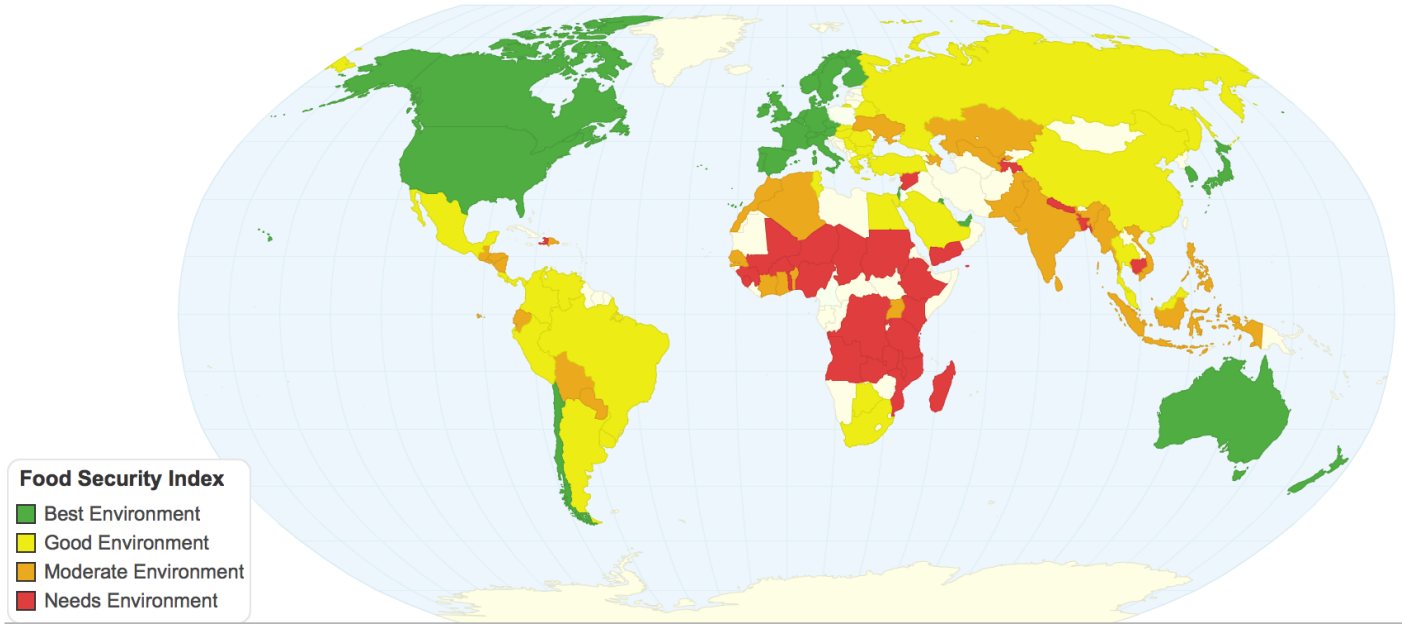
- Threats to food security undermine efforts to improve maternal and child nutrition.
- Interventions that improve underlying causes of food insecurity, may improve nutritional outcomes as well.

www.concernusa.org

- Reduces the GDP of African / Asian countries by 10% on average (World Bank, 2017)
- Must be reduced by 40% by 2030 (World Health Assembly)

THREATS TO FOOD SECURITY

Global Food Security Index

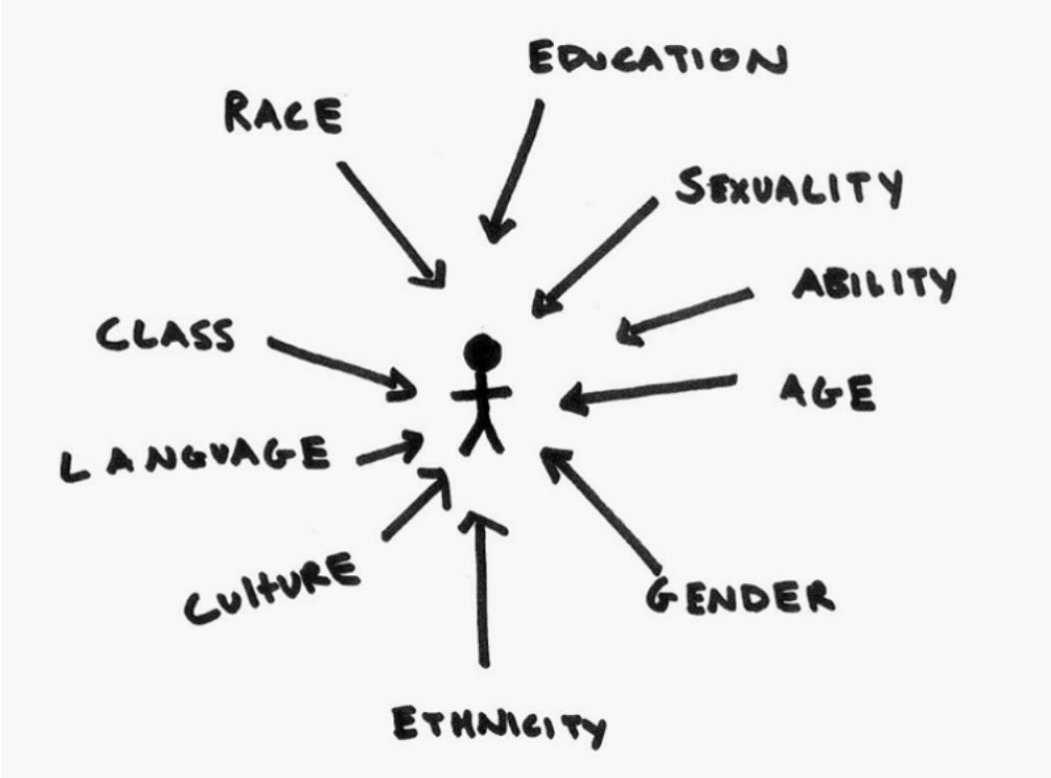


- Climate change
- Population growth
- Food production
- Food prices
- Loss of food varieties
- Land and water scarcity

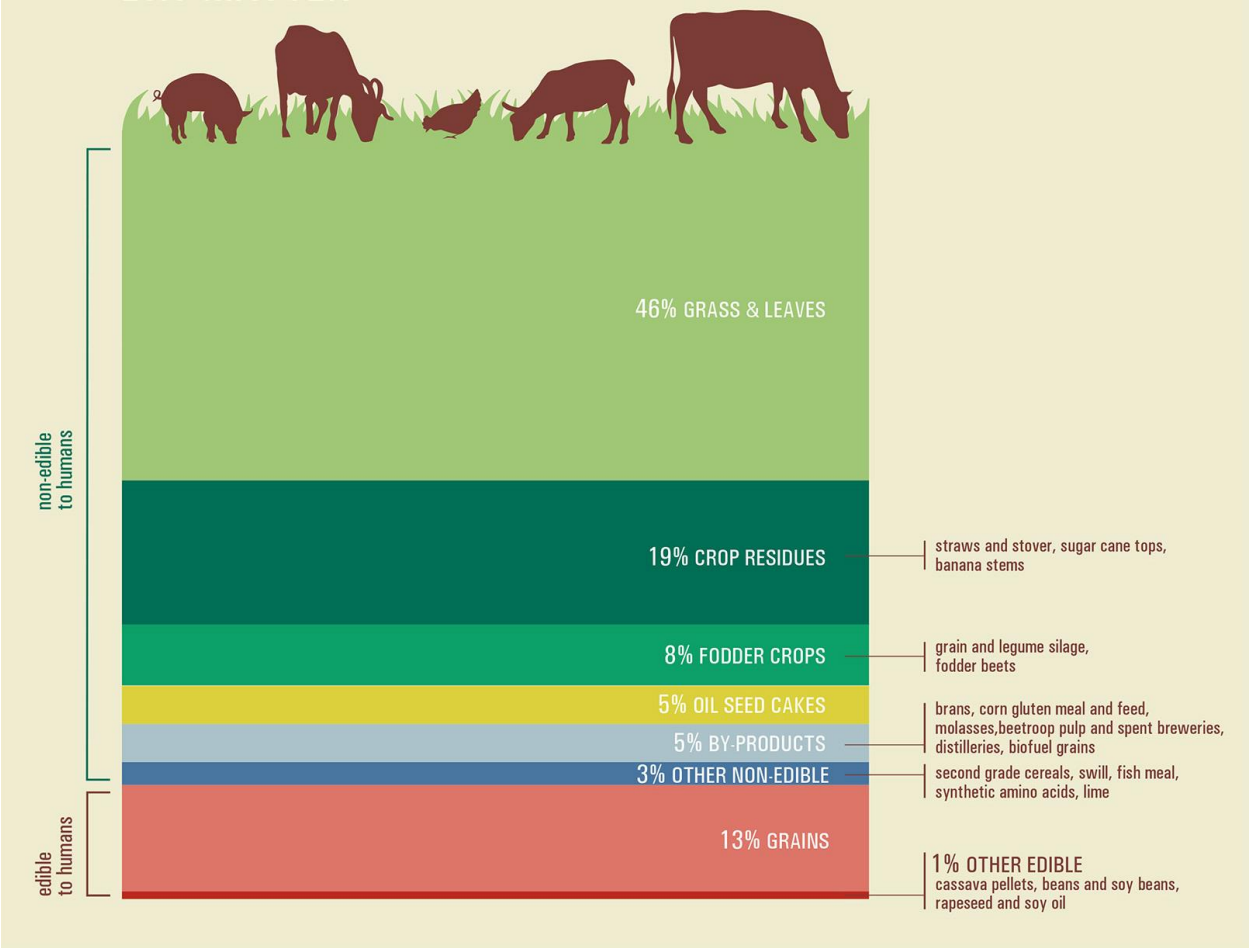
VULNERABILITY TO FOOD INSECURITY

Intersectional

- Gender
- Class
- Ethnicity
- Livelihood
- Age
- Caste
- Geography



FEED VS. FOOD



Adapted from FAO, 2017

ASF AND LAND USE

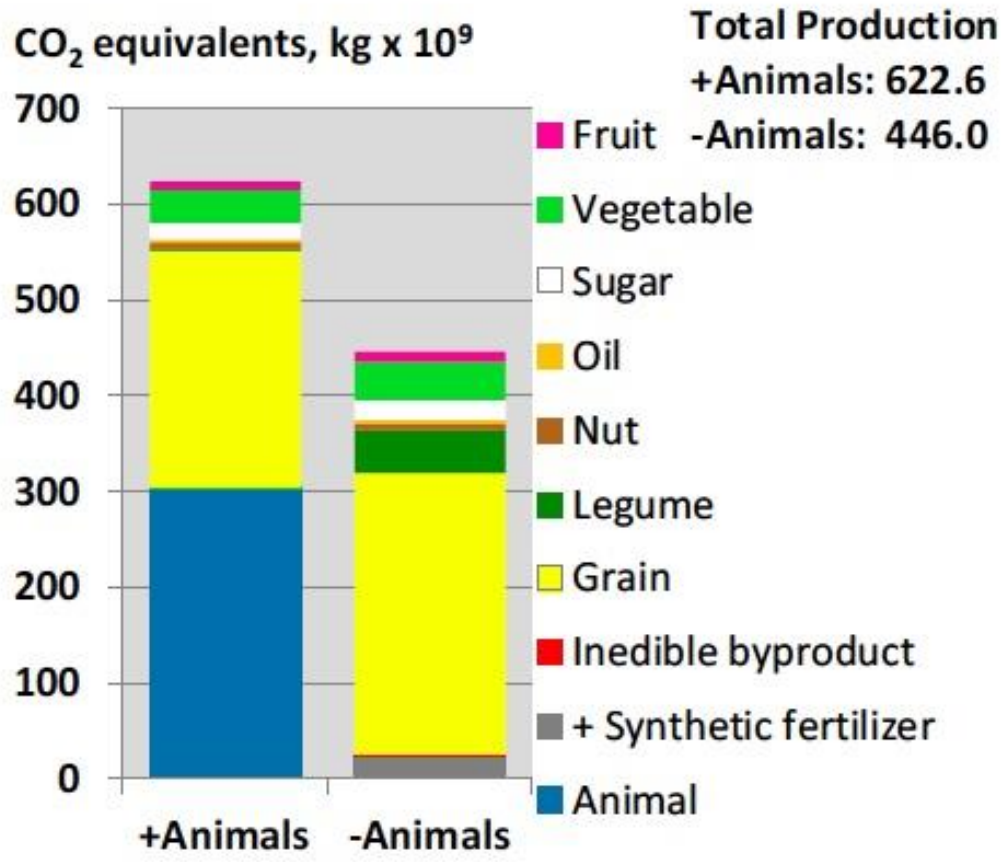
- Allows productive use of 30-40% of the earth's surface which is unsuitable for crop production (Sayre et al., 2013)
- ASF consumption prevents dumping of over 1 billion metric tons/year of agroindustrial co and by-products that we can't eat
- Grazing and range lands provide for water recharge, wildlife habitat and carbon sequestration

http://www.pellet-making-machine.com

(Smith, 2017)

WITH AND WITHOUT LIVESTOCK?

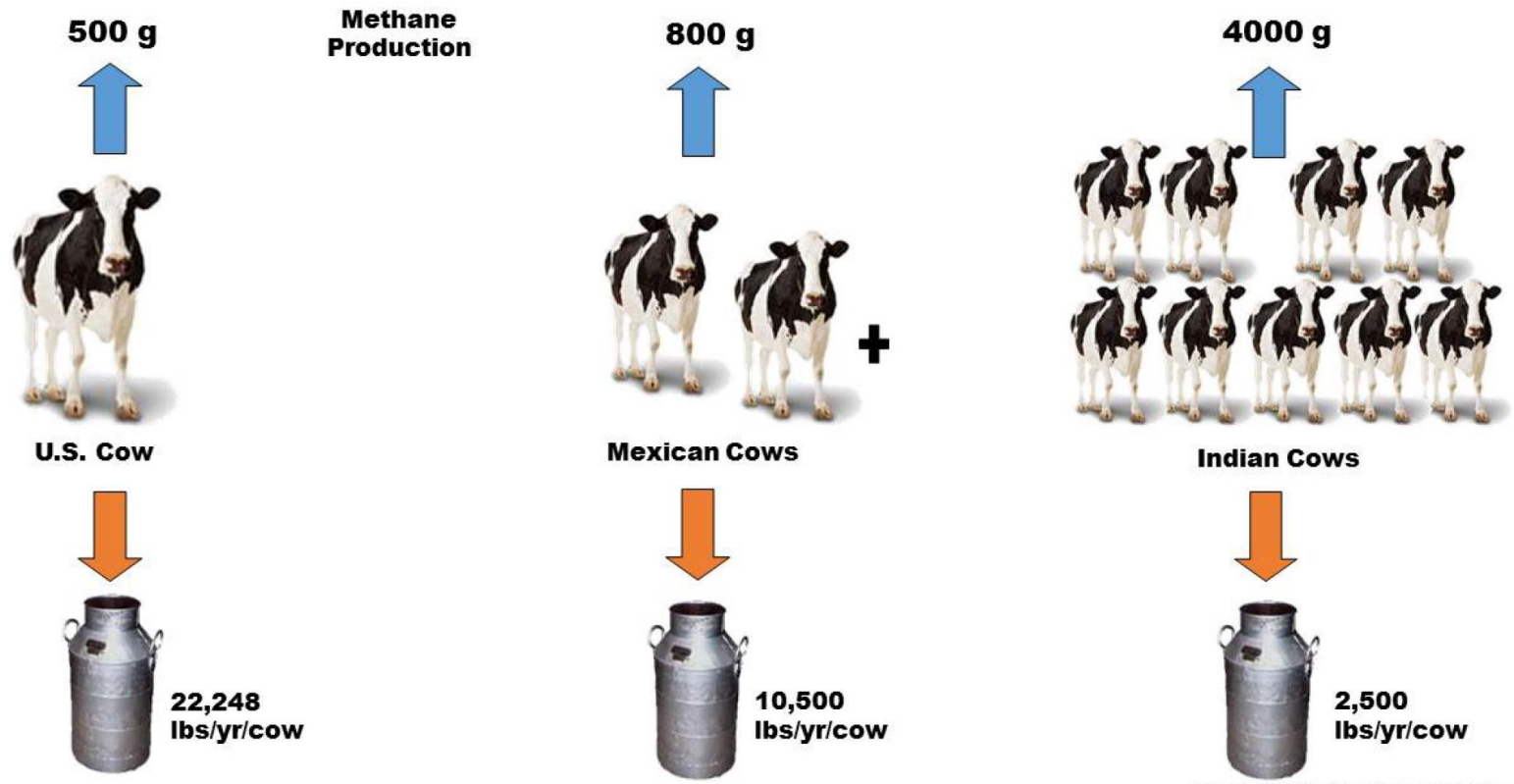
- Modeled current US diet vs. complete elimination of animal source foods
- GHG emissions lower when livestock are eliminated, but only 2.6 percentage units
- But dietary challenges occur rapidly with elimination of ASF, esp. Vit A, B_{12}, Ca, DHA, EPA and arachidonic acid



White and Hall, 2017 https://www.pnas.org/content/114/48/E10301

PRODUCTION EFFICIENCY

More Milk Produced per Cow = Less Methane and Waste



USDA and Compassion in World Farming

(Mitloehner, 2016)

MEETING DUAL PRESSING GLOBAL OBLIGATIONS

1. Feeding the growing population of the world

2. Environmental stewardship

We must use indices of sustainability that reflect both goals

Hence we should measure greenhouse gas emissions/unit of food produced i.e. emissions intensity

GREENHOUSE GAS EMISSION INTENSITIES

- Amount of greenhouse gas produced per unit of livestock product (human consumable) produced

- Vital measurement for meeting the nutritional needs of the poor with livestock and increasing the global demand for animal-source food while decreasing environmental impact of livestock

GLOBAL LIVESTOCK CONTRIBUTIONS

- Employs over 1.5 billion, with over ¾ billion dependent livelihoods
- Contributes 40% (mean) to the ag. GDP of developing countries
- **Supplied 25% of protein and 18% of calories consumed globally in 2016**
- Provided traction for about 50% of the world's farmers in 2009 (World Bank)

(Smith, 2017)

SUMMARY AND POLICY IMPLICATIONS

- Livestock production is vital for the educational, nutritional, economic and sustainability needs of the world; key to nutritional security, both in developing and developed countries
- Livestock contribute to global GHG production, but significant improvements are achievable
- Emissions intensity is the endpoint of interest to benchmark as a means of improving ASF yield while reducing emissions
- Sustainably increasing livestock production, esp. in developing and emerging economies, is crucial to ensuring food and nutritional security of future populations

THANK YOU!

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For more information about the Livestock System Innovation Lab at UF:

http://livestocklab.ifas.ufl.edu/

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