

# Livestock In The Developing World Challenges and opportunities

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# Outline

- A bit about ILRI
- Trends and opportunities in the global and developing-country livestock sectors.
- Challenges to livestock development in Africa.
- Priorities and strategies for livestock research for development.



# A lab in Africa at the foot of Kenya's Ngong Hills





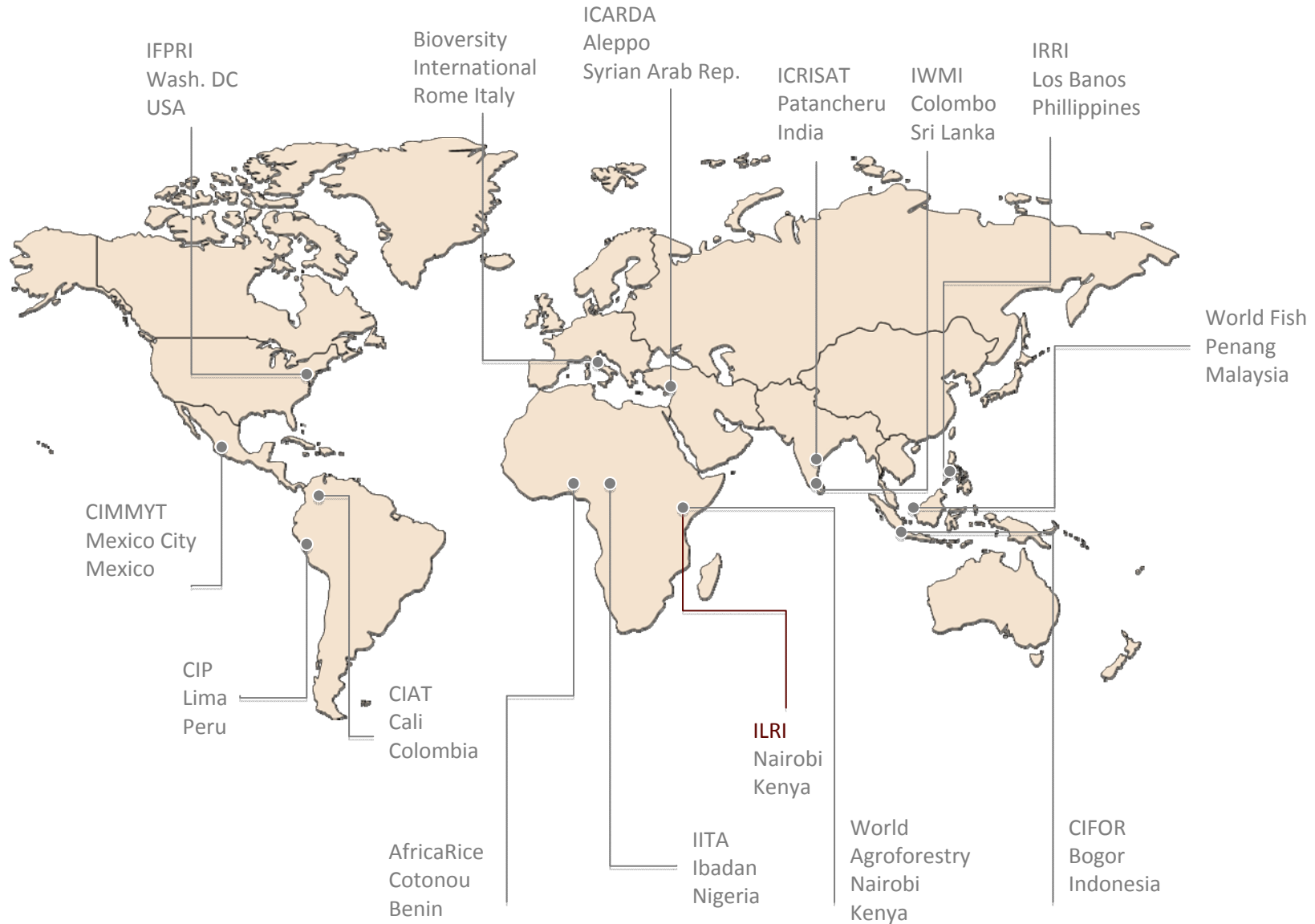
Labs



Farm and paddocks

SADF

# CGIAR Research Centres



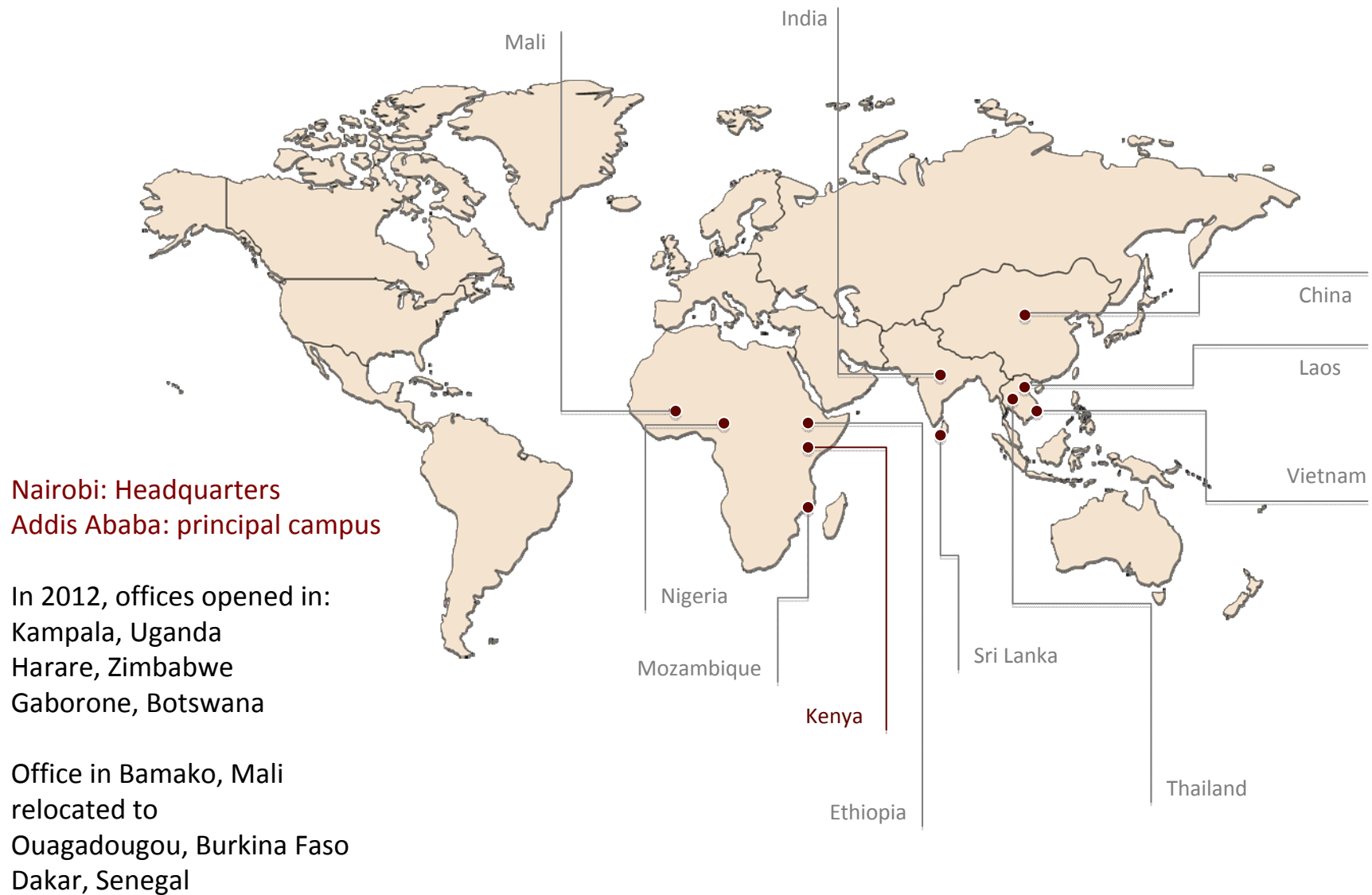
# ILRI Resources

- Staff: 700.
- Budget \$60 million.
- 30+ scientific disciplines.
- 120 senior scientists from 39 countries
- 56% of internationally recruited staff are from 22 developing countries.
- 34% of internationally recruited staff are women.
- Large campuses in Kenya and Ethiopia.
- 70% of research in sub-Saharan Africa.





# ILRI Offices



## Trends and opportunities in the global livestock sector



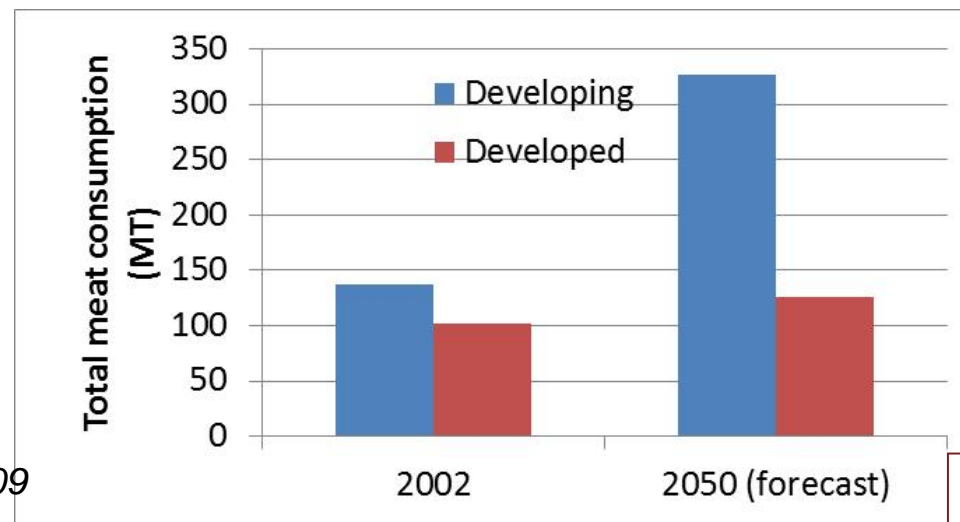
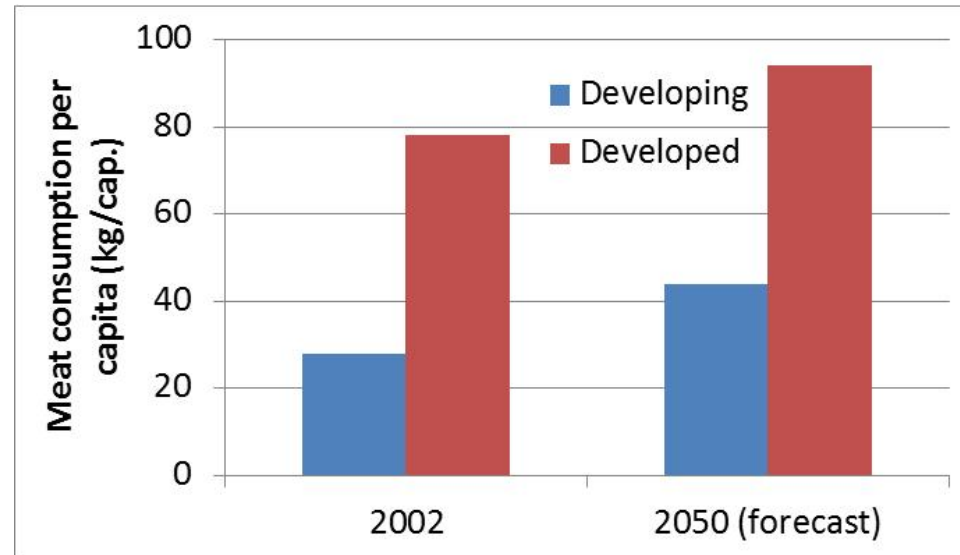


# Into the future:

## *Demand-driven 'livestock revolution'*

The 4 billion people who live on less than US\$10 a day (primarily in developing countries) represent a food market of about \$2.9 trillion per year.  
(Hammond *et al.* 2007)

Consumption of meat and milk in developing countries is forecast to increase faster than that for any crop product.  
(IAASTD 2007)

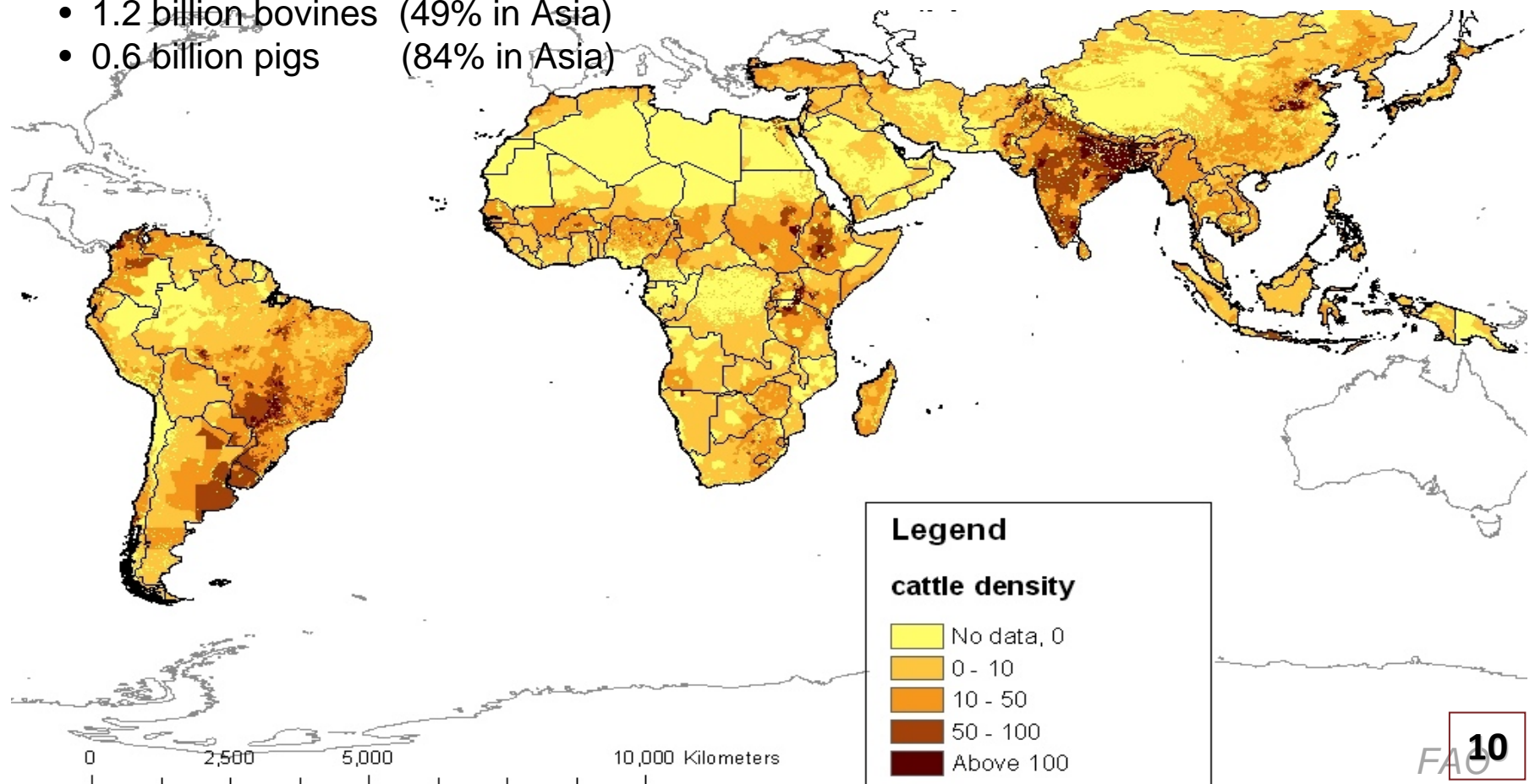


Rosegrant *et al.* 2009

# Livestock in developing countries/Africa

70% of the world's livestock (18.5 billion head) are in developing countries:

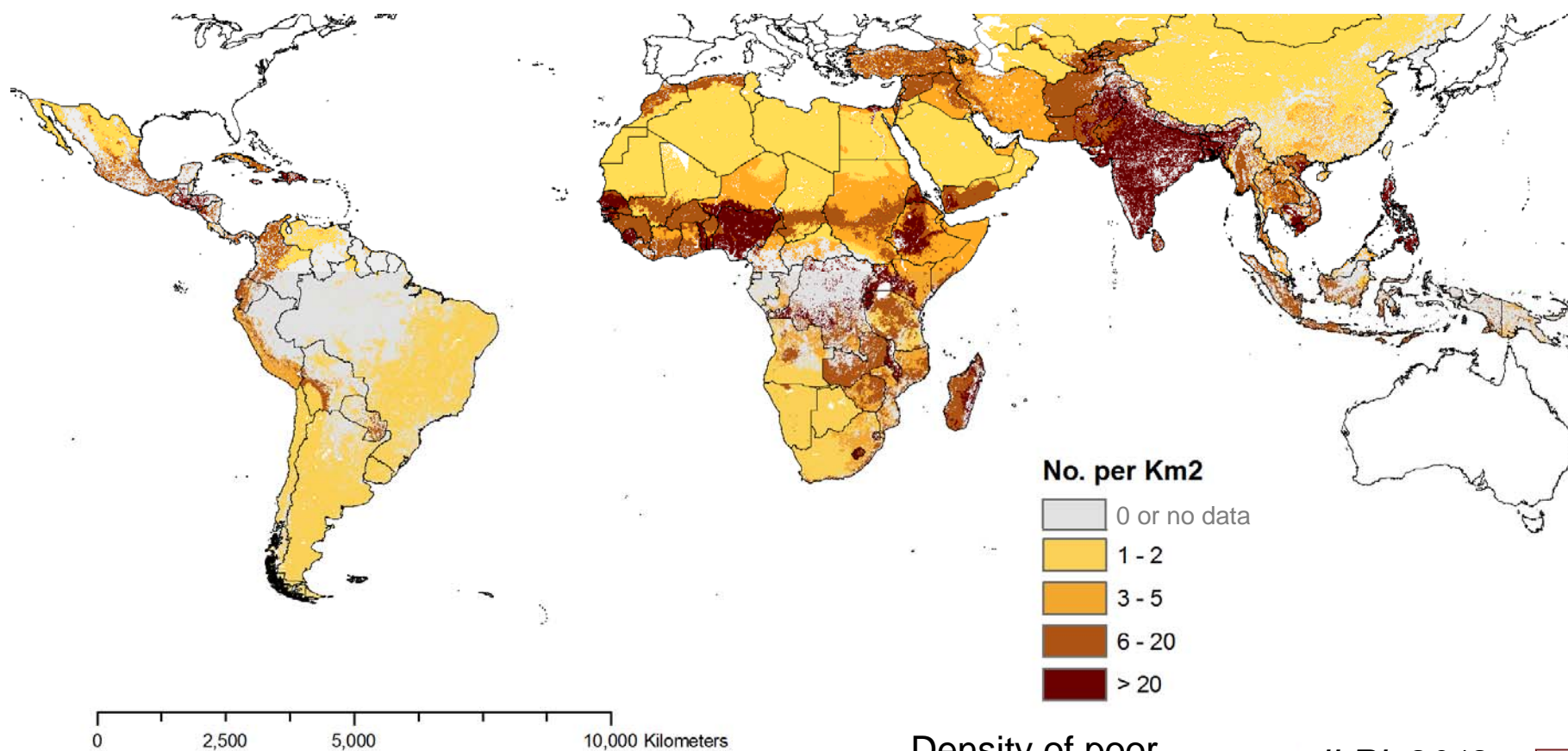
- 15 billion poultry (70% in Asia)
- 1.6 billion shoats (44% in Asia)
- 1.2 billion bovines (49% in Asia)
- 0.6 billion pigs (84% in Asia)



# Livestock keepers in developing countries

One billion people earning <\$2 a day depend on livestock:

- 600 million in South Asia
- 300 million in sub-Saharan Africa



Density of poor  
livestock keepers

*ILRI, 2012*



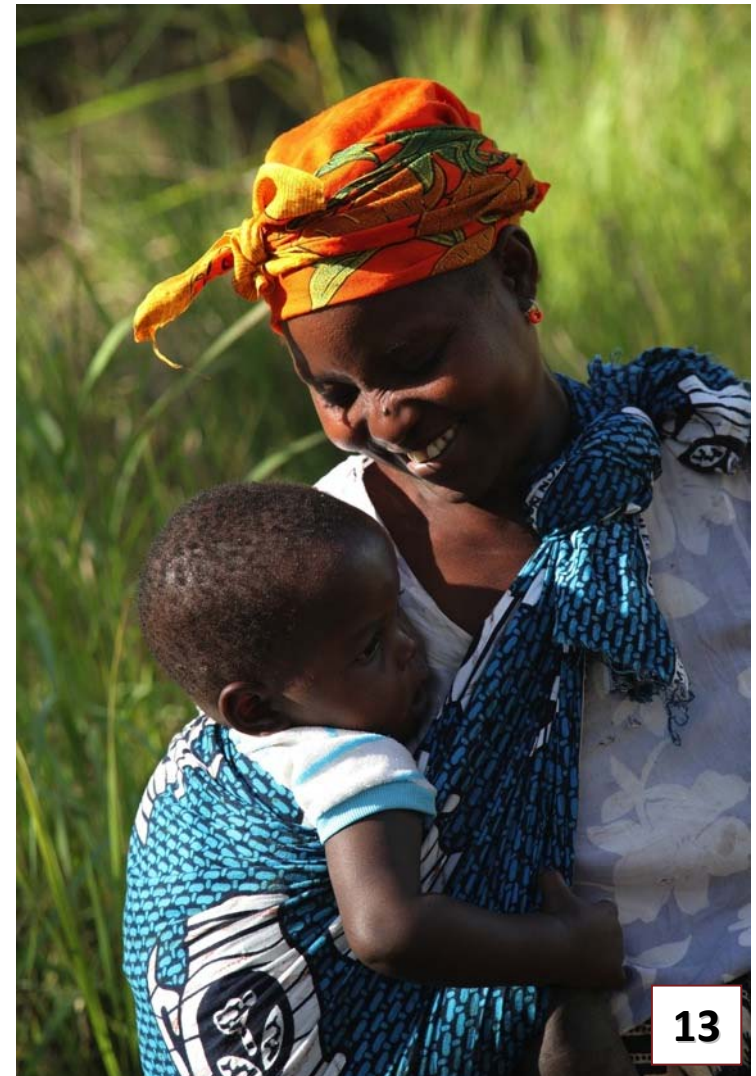
# Livestock and livelihoods

- 70% of the world's rural poor rely on livestock for important parts of their livelihoods.
- Of the 600 million absolutely poor livestock keepers in the world, around two-thirds are rural women.
- Over 100 million landless people keep livestock.
- For the vulnerable, up to 40% of benefits from livestock keeping come from non-market, intangible benefits, mostly insurance and financing.
- In the poorest countries, livestock manure comprises over 70% of soil fertility amendments.



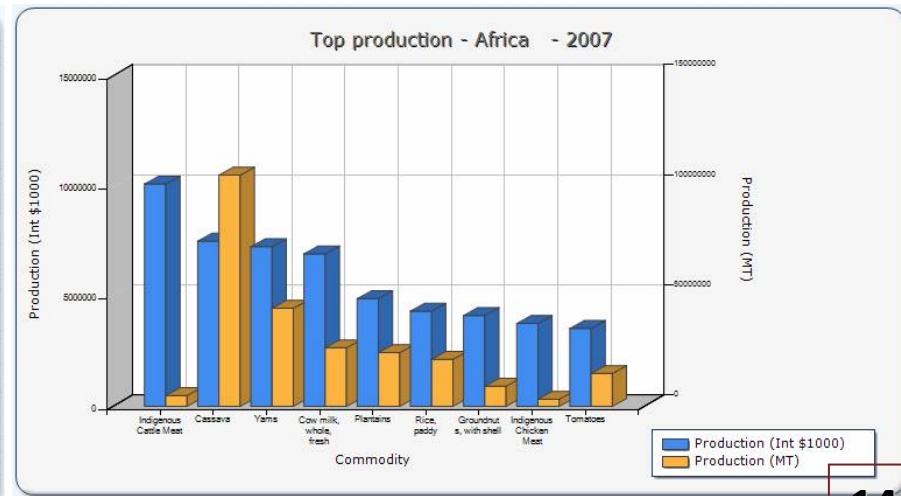
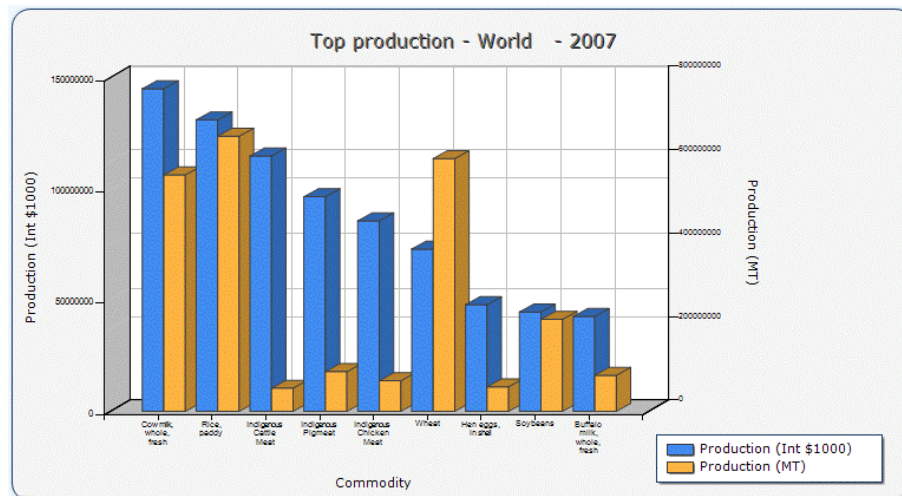
# Livestock for nutrition

- In developing countries, livestock contribute 6–36% of protein and 2–12% of calories.
- Livestock provide food for at least 830 million food-insecure people.
- Small amounts of animal-source foods have large benefits on child growth and cognition and on pregnancy outcomes.
- A small number of countries bear most of the burden of malnutrition (India, Ethiopia, Nigeria—36% burden).



# Highest value commodities

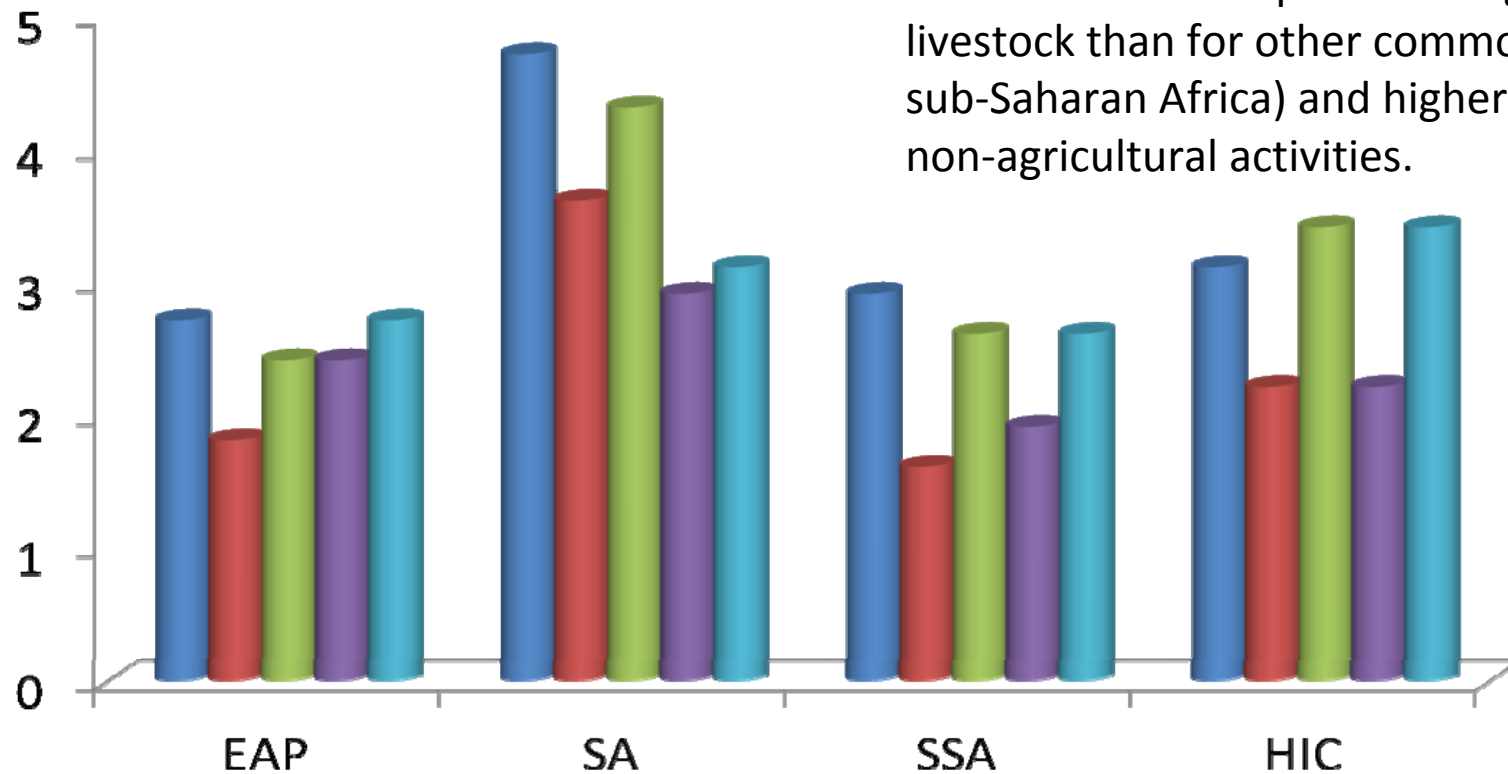
- Globally, livestock are 4 of the 5 highest value commodities and 2 of the 5 highest value in Africa.
- In developing countries, the livestock sector now contributes around 40% of agricultural GDP (FAO 2009).





# Livestock multiplies rural incomes

- Rural income multipliers are higher for livestock than for other commodities (3x in sub-Saharan Africa) and higher even than non-agricultural activities.

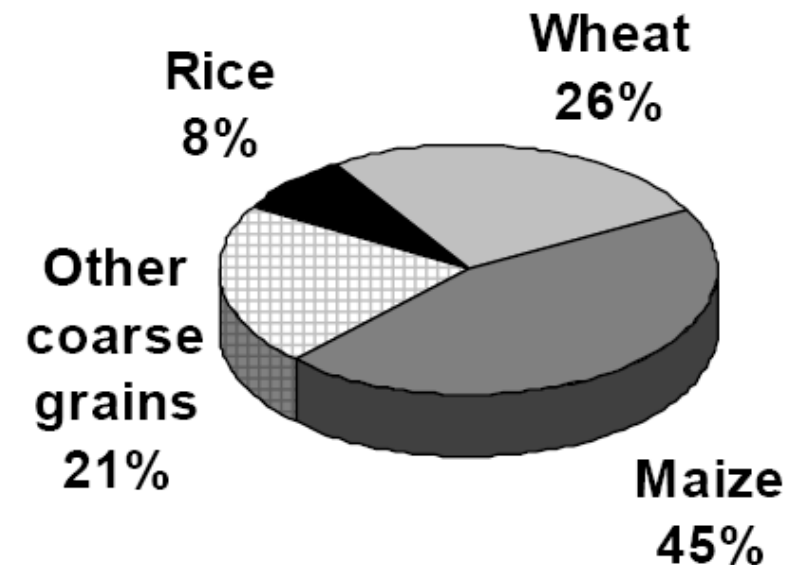
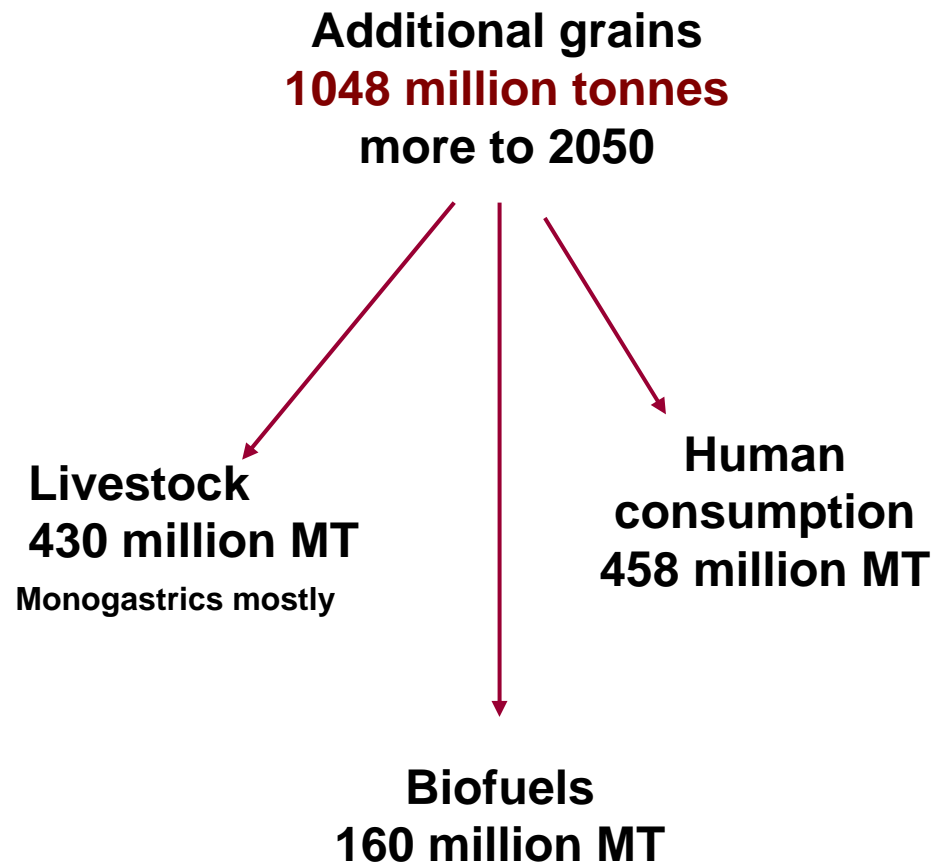


# The livestock challenges



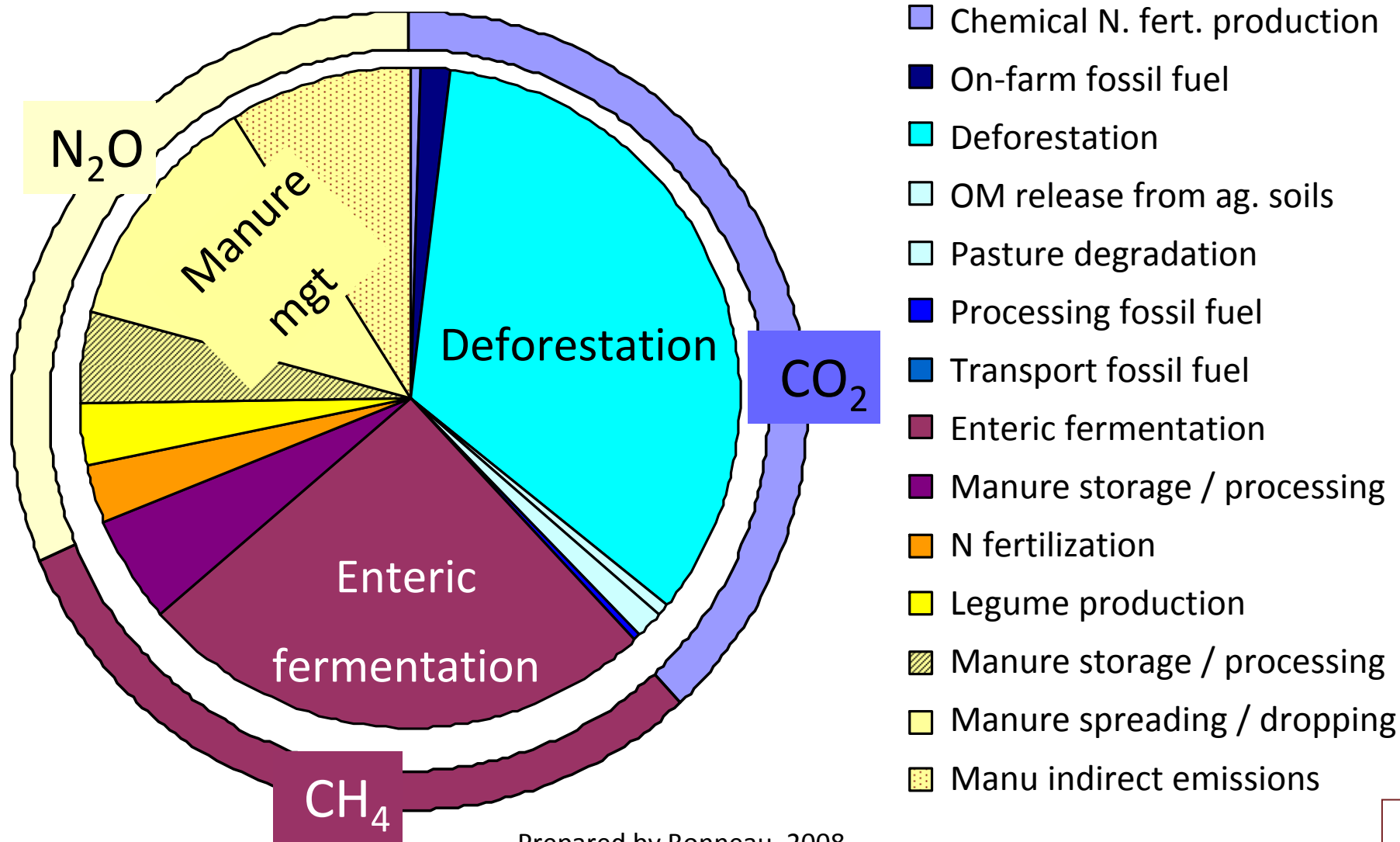
# Additional food needed

1 billion tonnes of additional cereal grains to 2050 to meet food and feed demands (IAASTD 2009)





# Livestock and greenhouse gases: 18% of global emissions



Prepared by Bonneau, 2008

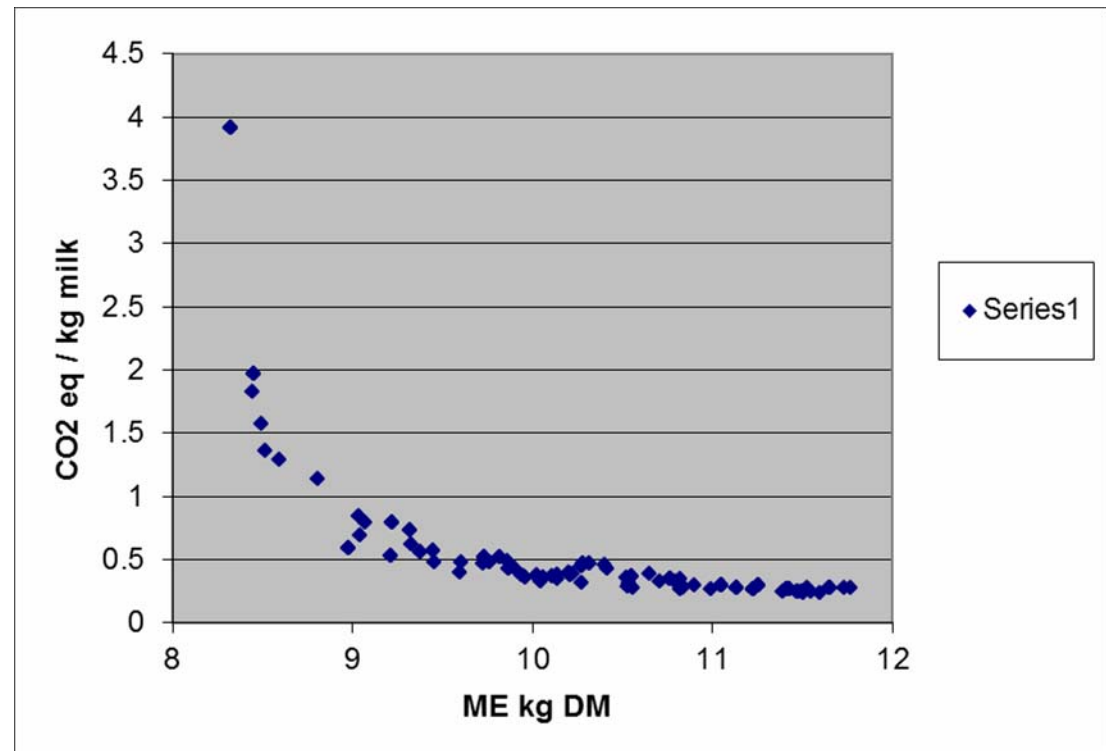
# Productivity gaps and constraints

- Productivity gap estimates:
  - up to 130% in beef, 430% in milk, even among existing breeds.
- Short-term constraints:  
Estimates suggest typical 50–70% deficits in feed relative to genetic potential.
- Longer term constraints:  
Animal diseases cause mortality and low productivity:
  - e.g. East Coast fever, trypanosomosis, Newcastle disease
  - In some systems, up to 20% mortality in adults, much higher in young animals.



# Productivity win-win

- Improved productivity reduces greenhouse gas emissions per unit of product while increasing livelihood gains and improving resource efficiency.





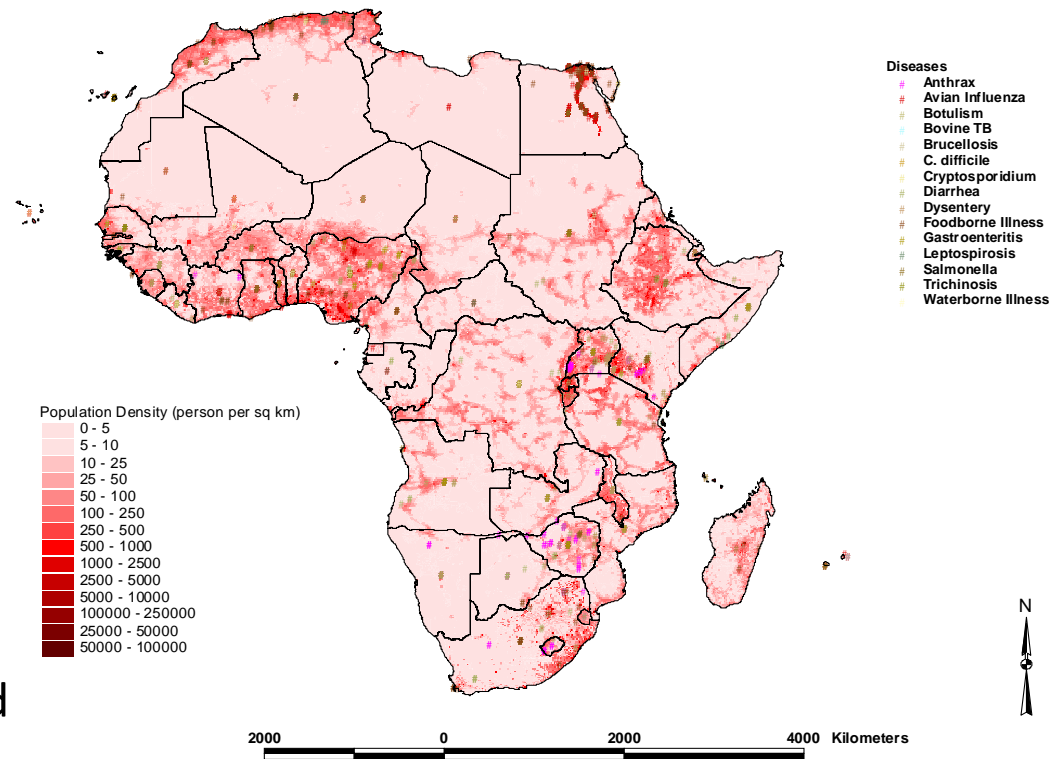
# Trade-offs: Environment—livelihoods

- Production increases mainly through increased numbers of livestock.
- Reducing animal numbers however has implications for livelihoods.
- Need to produce with smaller environmental footprint.
- Opportunities to leverage benefits for soils in livestock-based natural resource management options.



# Livestock and human disease

- Animal-source foods are the biggest contributor to food-borne diseases.
- Diseases transmitted from livestock and livestock products kill more people each year than HIV or malaria.
- One new human disease emerges every 2 months and 20% of these come from livestock.



# Growing local markets but mostly informal

- Large majority of domestic African livestock products markets are traditional/informal (80–90%).
- Domestic markets dominate: Opportunities for exports are limited by SPS and quality standards.
- *'Supermarketization'* threatens smallholder market participation, although smaller impact on fresh foods.
  - Driving higher standards for quality and food safety.
  - Changing market structure towards vertical integration, large scale of production.





# Livestock research-for-development strategy for Africa





# Targeting livestock R4D to context in Africa

- Identify different growth scenarios for livestock systems:
- **‘Inclusive growth’**
  - Where good market access and increasing productivity provide opportunities for continued smallholder participation.
  - Mostly mixed crop-livestock systems (e.g. East Africa dairy).
- **‘Fragile growth’**
  - Where remoteness, marginal land resources or agro-climatic vulnerability restrict intensification.
  - Mostly agro-pastoral settings.



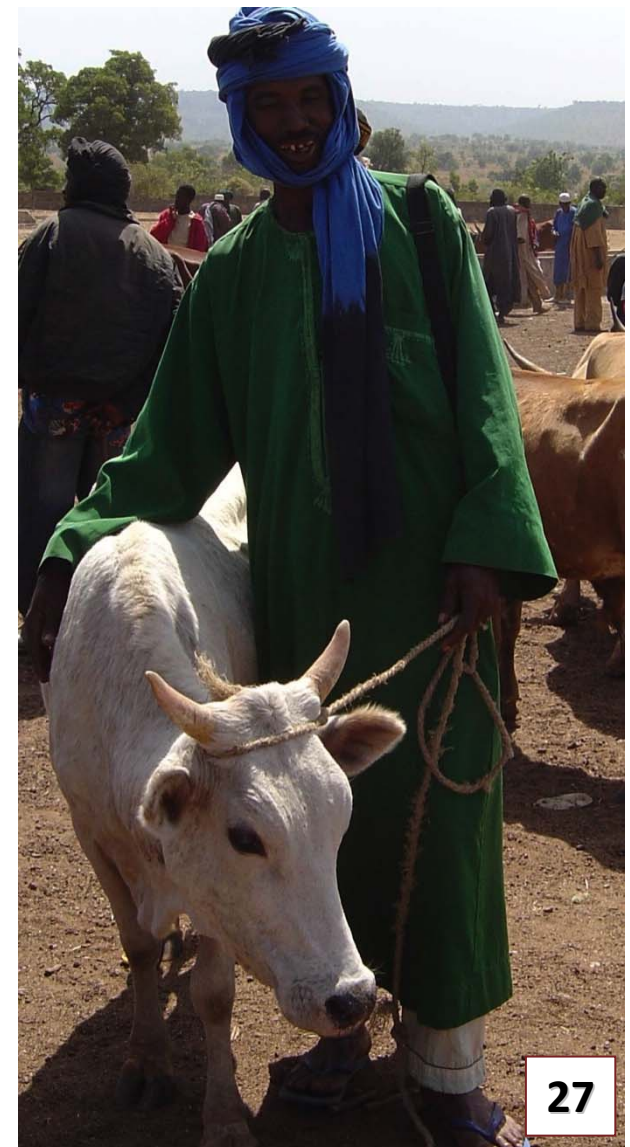
# Research for 'inclusive growth'

- Find organizational options for linking farmers (particularly women) to markets (e.g. hubs, IPs).
- Mitigate both animal and human disease threats:
  - Reduce zoonotic disease threats and increase livestock food safety.
  - Reduce livestock disease burdens on farms (e.g. East Coast fever, African swine fever).
- Improve feeds for rapid gains:
  - Better use of food-feed crops and planted forages.
- Develop and spread breeds that:
  - Farmers want
  - Are tailored to local settings, resources
- Develop climate-smart production strategies and build adaptation capacity.



# Research for ‘fragile growth’

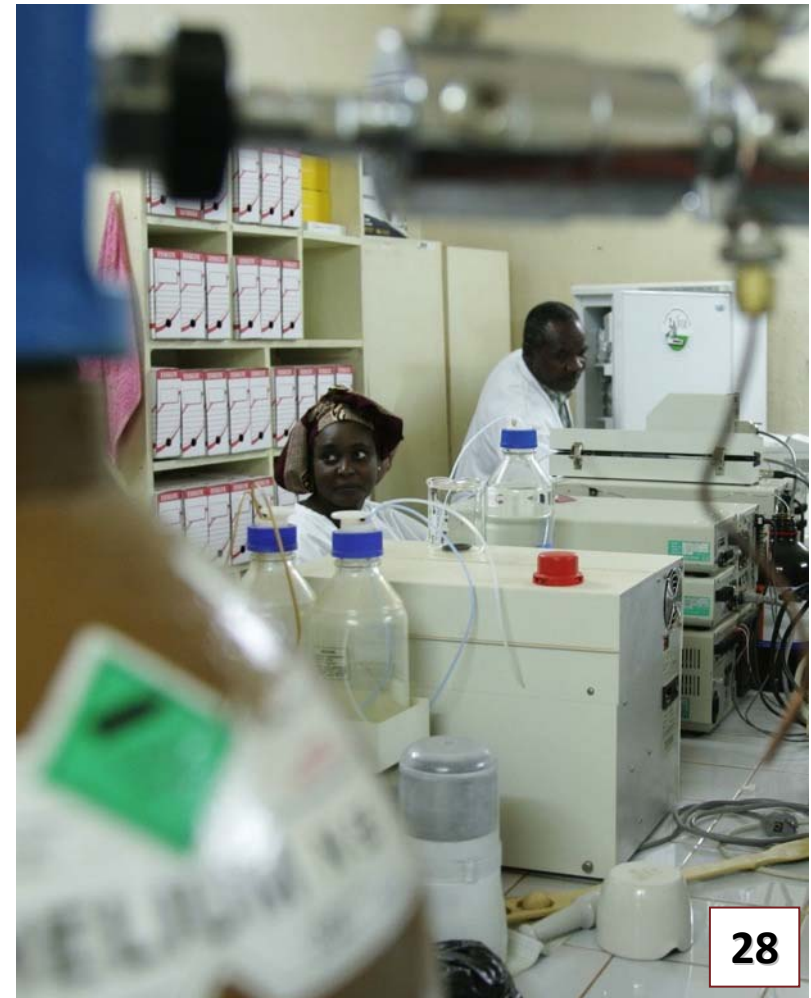
- Reduce vulnerability and increase resilience via:
  - Livestock insurance innovations
  - Payment for environmental services schemes
  - Diversification of livelihoods
- Secure livestock assets:
  - Develop improved vaccines and diagnostics
- Increase productivity:
  - Conserve and improve indigenous breeds
  - Restore degraded rangelands
  - Improve use of feed and water resources





# Impact pathways

- Change practices
  - R&D partnerships to bring about uptake of improved technologies and strategies in production and value chains
  - Demonstrate ‘at scale’
- Influence investment and policy
  - Jointly generate and communicate evidence of potential impact for investment in livestock and pro-poor policies
- Strengthen capacity
  - Implement joint learning and development with regional and national partners to support capacity for R4D.





# Summary

- *Address complex challenges*  
Wide range of issues to be addressed in R4D for livestock in Africa, with barriers to improving:  
-- livestock productivity, health, environments and markets.
- *Meet technical challenges*  
Better disease control will require long-term investment and research infrastructure.
- *Enhance livestock markets*  
We can take advantage of increasing livestock demand by increasing smallholder participation in growing livestock markets.
- *Use technologies and institutions*  
We can take advantage of increasing response opportunities by applying new technologies and organizational models.
- *Seize the moment*  
We can take advantage of the increasing capacity of our partners and the current interest of investors and decision-makers.





**THANK YOU**