The Role of Innovation in Sustainable Livestock Systems with a focus on Food and Nutrition

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Enhancing Food Security through Innovation in Sustainable Livestock Systems
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Food and nutrition security, SDGs and livestock
% growth in demand for livestock products to 2030

Estimates of the % growth in demand for animal source foods in different World regions, comparing 2005 and 2030. Estimates were developed using the IMPACT model, courtesy Dolapo Enahoro, ILRI.

Increases not because of overconsumption!

OECD average 2018 = 69 kg/capita meat
SSA average 2018 = 10 kg/capita meat
Proportion of livestock-derived foods produced by small farms in 2010

Smallholder farmers can meet the world’s increasing demands for meat, milk and eggs.

- **Northern America**: 8%
- **South America**: 10%
- **Europe**: 30%
- **Africa**: 72%
- **Asia**: 75%

**Farms less than 20 ha provide:**
- Globally: nearly 50% of the livestock and cereals
- In emerging and developing economies: close to 70% of the livestock and cereals

Percentage of livestock-derived foods produced by small farms (less than 20 hectares) in 2010.
Nutritional divides among the world’s 7.5 billion people

Just over one third well-fed and nourished

Poor nutrition results in 11% of GNP lost annually in Africa and Asia

- Stunted children
- Hungry people
- Insufficient nutrients
- Overweight / obese
- Balanced diets

Health care for obesity economic cost: USD2 trillion
Diverse nutritional status demands diverse solutions

Low income countries
- Reduce energy deficiency
- Reduce micro-nutrient deficiency

Middle income countries
- Reduce energy deficiency

High income countries
- Reduce excessive net energy and unhealthy diets

% population
Livestock-derived foods are critical for human health, especially for new mothers and young children

- 150 million young children are stunted
- Milk, meat and eggs provide key nutrients (vitamins A, B12, choline, iron, zinc) in highly bioavailable forms for humans
- Especially critical for addressing nutrient deficiencies in undernourished people
- One egg a day can reduce stunting (by 47%) among in 6–9 month-old babies where stunting levels are high
- Growing evidence that it is impossible for babies to achieve adequate nutrition in the first 1000 days of life without access to livestock-derived foods
- And that livestock-derived foods are essential for at least 3000 days, and important in appropriate amounts for a healthy diet throughout life
Multiple roles of livestock

- Source of critical nutrients
- Income from livestock buys nutritious foods
- The livestock sector provides jobs for millions (mostly in the informal sector in developing countries)
- Drives economic development - 40% of agricultural gross domestic product (GDP); and 15–80% in developing countries
- Over half the cereals in the world can only be produced with livestock in the system (soil fertility, traction, cash for inputs)
- Of the over half a billion small holder mixed crop-livestock farmers in the world
Women at the nexus

- Two-thirds of the small holder mixed crop-livestock farmers in the world are women
- Women have essential roles in household nutrition
- Livestock can be the means to bring about transformative change in millions of womens’ lives
INNOVATIONS IN SUSTAINABLE LIVESTOCK
Close the yield gap

- Milk yield in Sub-Saharan Africa is 6% of that in OECD countries

FAO and GDP. 2018
Using production from different genotypes and production systems to assess gaps

Effects of different management strategies on the increase in value of annualized milk off-take

Staal et al. 2009
Sustainable intensification

- Use the power of animal agriculture to promote a robust circular bioeconomy
- 23% of nitrogen for crop production in crop-livestock systems comes from manure
- 15% farms in southern Africa and 81% in northern Africa depend on traction for ploughing
- 7 million oxen are the main source of power for tilling in the Ethiopian highlands
Mitigate environmental harms

FAO and GDP. 2018
Protein supply from animal-sourced foods by region/continent in 2013 (g/person/day)
Improve nutrition: Nourish as well as feed people with balanced amounts of livestock foods

Increasing the productivity of livestock in low-income countries—e.g., through better feeds, breeds and health—to greatly augment food supplies.

Promoting ‘nutrition-sensitive livestock interventions’ to increase the availability, affordability, access and use of animal-source foods – directly and through better income

Applying a new tools that provide indicators to assess the impacts of interventions on women’s roles, including household nutrition
Improve access to animal source foods

Hirvonen et al. in press
Promote food safety

- Food borne diseases (many associated with animal-source foods) each year:
  - 600 million people are sickened
  - 420,000 people, mostly children die
  - US$95M economic loss for low- and middle-income countries

- Focus on informal markets
  - 70-80% of animal source foods sold in informal markets in developing countries
  - Adopt a risk based approach
  - Use market incentives to build capacity in food safety among value chain actors
Support the role of women in feeding and nourishing families; communities; globally

AFRICAN WOMEN:

Hold the future of Africa is in their hands..............................hand them the resources to fulfil on their promise

Only 23% of African’s women have access to credit, and 15% access to land

Sub-Saharan Africa lost $2.5 trillion (11% of total wealth) in 2014 because of gender inequality

Current estimates: in Africa by 2030 as many as 140 million jobs for women in livestock
• Report recognized that the livestock sector is central to food systems development.
• Made a number of critical recommendation
better lives through livestock

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