Scaling up animal source food production to sustainably meet growing demand in developing countries

“Aligning the Food Systems for Improved Nutrition in Animal Source Foods”, UC-Davis May 13-14, 2019

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Outline

• Growing demand = more production in LMICs
• The role of smallholders
• Informal markets for livestock products
• Facilitating increased smallholder production and market access - examples
• Risks of a food-systems approach?
Global commodity values: on average animal source foods, five of the top ten

Current million USD
(average annual values 2007-2016; animal source foods: USD 830 billion)
Projections of Livestock Production to 2050

- Sector growth is huge in the LMICs
- How, where and who will produce such amounts of livestock produce?
- Answer = mostly in LMICs themselves. Only 10% of ASFs are traded

Sources: ILRI computations, based on FAO data
Smallholders still dominate livestock production in many countries

<table>
<thead>
<tr>
<th>Region (definition of ‘smallholder’)</th>
<th>% production by smallholder livestock farms</th>
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<tbody>
<tr>
<td></td>
<td>Beef</td>
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<tr>
<td>East Africa</td>
<td>60-90 (≤ 6 milking animals)</td>
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<tr>
<td>Bangladesh (&lt; 3ha land)</td>
<td>65</td>
</tr>
<tr>
<td>India (&lt; 2ha land)</td>
<td>75</td>
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<tr>
<td>Vietnam (small scale)</td>
<td>90</td>
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<tr>
<td>Philippines (backyard)</td>
<td>85</td>
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Various sources: BMGF, FAO, ILRI
Smallholder competitiveness

• The “household model” of production (multiple objectives, multiple benefits).
  • Multiple benefits, maximum use of low cost resources and farm synergies, not completely dependent on profits, up to 40% non-market “return”

• The large scale “enterprise model” of production (1 objective and benefit=profit)
  • Capital intensive, mechanization and economies of scale advantages only work when labor costs are high

• Multiple studies across continents demonstrates reasons for underlying competitiveness
  • limited economies of scale in production
  • Often comparable unit costs of production, small vs large
  • Fresh product markets also buffer import competition
Opportunity costs of labor determine scale of production

Cattle herd size and rural wages

Source: Project on Transregional Analysis of Crop-Livestock intensification, ILRI 2002
Smallholder investment rationale

- Does not require sentimental belief in “small is beautiful”
- Is simply based on the evidence and objective
  - increasing ASF supply to consumers
  - they produce the bulk of supply so have to include
  - does not detract from investing in larger commercial systems
- But also
  - Strong vehicle for empowering women and vulnerable communities

More ASF production in rural communities = more ASF consumption
Growing local markets but mostly informal

- Large share of developing country livestock product markets are traditional/informal (80–90%).

- Domestic markets dominate: Opportunities for exports are limited by SPS and quality standards, but also price.

- ‘Supermarketization’ threatens smallholder market participation, although smaller impact on fresh foods.
Dairy sector comparisons

Liquid milk equivalents

Million MTs (early 2000’s)

India informal
USA+ Canada
UK, Ger, Fra & Neth
Global dairy product trade

India Informal  USA+ Canada  UK+Ger+Fra+Neth  Global imports

Informal/traditional markets are not small
Demand for safety & quality drives formal and informal markets

- Level of product safety/quality
- Consumer purchasing power/income

- Mostly formal markets
  - Market may impose higher private standards
  - Official public standards
  - Market will not enforce public standards

- Mostly informal markets
  - Market driven standards are like death and taxes: impossible to avoid

- Raising awareness and social marketing can raise demand for safety
Training and Certification - upgrading informal milk markets

Milk Trader

Certification/Licensing

Cess fee

Training guides

Hygienic cans

Accreditation & monitoring

Training & competence

Fee

Training Service Providers (BDS)

Analysis found over $30M annual benefits to farmers and consumers
Dairy hubs – business oriented collective action
Various forms of multi-stakeholder platforms, eg innovation platforms
- Aiming to bring together actors for new synergies, joint learning, business linkages
- Aim to overcome market failure
- However, benefit/cost and sustainability uncertain
Opportunities through FOOD-FEED CROPS

• Genetic tools can be used to develop crop varieties with improved residue quality
  • 3% increase in digestibility = 7% increase in milk productivity (sorghum)

• Rice straw next target
  • Huge potential impact across large parts of Asia

• Potential environmental ‘win-win’
  • Fewer GHG emissions compared to burning or decomposition
Forages, youth, women

Opportunity for Inclusion
• **Youth** as direct producers:
  - Men and women groups allocating land to fodder production
  - Aggregating and marketing

Further Opportunities
• Equipment services by youth
• Commercial aggregators

Starting with 9 youths
32 youths in phase II
60 youths to be supported in total
Financing innovation for beef fattening (Swaziland)

External
- Producer
- Traders

Group
- Finishers/Traders
- Financial partner

Other input and support services
- Fodder, waste, grass
- Grow the feed – forage and grass based

Commercial market
- Meat wholesalers
- Retail butcheries

Swaziland Meat Industries

80% cheaper, grown all year round
Adopting a “food systems” approach to livestock R&D – risks?

• In rural communities across LMICs, livestock represent much more than ASFs and food
  • Other products and benefits like hides/fiber, draft power, and important soil amendments
  • Livestock products inherently resource-dense so more market oriented = income
  • Livestock assets are unique: inflation proof, provide both insurance and financing mechanisms simultaneously
  • Livestock assets are often the main assets for rural women
  • Livestock assets invested in education and remunerable enterprises, facilitating generation exit from agriculture

• At least “agri-food systems” – maybe people and communities first, food second
BMGF supported Global Livestock Advocacy for Development
better lives through livestock

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