Ensuring Quality and Consistency of Supply of Safe Food in Domestic Markets

John E. Lamb, Sr. Adviser in Agriculture, Food Security, Trade, and Food Safety
BROADLY DEFINED, AGRICULTURE IS A HUGE DEVELOPMENT DOMAIN

Crops

Aquaculture & Mariculture

Livestock

Agro-forestry
EVEN PLANT AGRICULTURE OFFERS MYRIAD UNDEREXPLOITED OPPORTUNITIES

Identified species: 287,655
Used species: 100,000 (Heywood)
Edible species: 12,650 – 75,000 (Myers, Wilson, Kunkel)
Economic uses: 9,500 (Uphof)
Potential food source: 7,000 (Wilson)
Used for food: 3,000 (Society for Economic Botany)
Cultivated for food: 2,000 (Wikipedia)
Commercialized: 200 (Society for Economic Botany)
Major economic crops: 22 (Society for Economic Botany)
Plant products are not only destined for food use...
>90 million acres

>10-20% of crop is exported

>US accounts for 40% of global exports

Have you used a corn product in the last week?
FOOD SAFETY IS THE GREAT CONNECTOR BETWEEN AGRICULTURE, NUTRITION AND HEALTH
WHY FOOD SAFETY REPRESENTS A PARTICULARLY DIFFICULT CHALLENGE TO DEVELOPMENT

- Most evident by its absence
- Old approach emphasized control over prevention
- Traditionally relegated to governments, and within that to regulators
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- Requires very specific technical expertise in a wide array of disciplines, themes, commodities, industries
- Difficult to agree on priorities
- Hard data and political will are often both lacking
- Hard to keep up with science, technology, and… meetings!
IS THIS FUNDAMENTALLY A SCIENTIFIC CHALLENGE...

Manipulating the disease triangle

**Host Augmentation**
- Genetic selection
- Vaccination
- Immuno-stimulants
- Prebiotics & Probiotics
- Microbiome manipulation
- Antibiotics
- Feed & Feed additives
- Stress management

**Pathogen Control**
- Biosecurity measures
- Pathogen reduction equipment
- Water conditioners
- Chemical therapeautents
- Repellents
- Fallowing
- Vector control
- Beneficial biologicals
- Seasonal changes to production

Source: Aquaprobiotics, 2017
…OR MOSTLY A QUESTION OF POLICIES, REGULATIONS AND ENFORCEMENT…
WHY FOOD SAFETY SHOULD MATTER TO THE USG

> Importance of food imports to US itself continues to rise, as does importance of emerging diseases such as HPAI

> Finalization of the design of FSMA, coupled with significant funding increases for FDA, extends reach of USG into supply sources all over the world

> 1996 World Food Summit included food safety in the classic, now widely accepted definition of food security
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> 1996 World Food Summit included food safety in the classic, now widely accepted definition of food security

> Original FtF strategy implicitly covered food safety

> New Global Strategy explicitly includes it

> SDGs also explicitly includes safe food
*DEVELOPMENT HYPOTHESIS

- The national, regional & global agricultural sectors interact constantly in terms of price discovery, product and financial flows, transfer of data/information/technology, and paradigms for doing business

- Changes in the structure, conduct, and performance of the global agricultural sector over the last 25 years have been profound, are continuing, and arguably accelerating within Asia
*DEVELOPMENT HYPOTHESIS*

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- Changes in the structure, conduct, and performance of the global agricultural sector over the last 25 years have been profound, are continuing, and arguably accelerating within Asia.

- Domestic agri-food markets in Asia remain significantly different, yet are also evolving and gradually emulating global trends with a lag.

- The development community cannot effectively address the complex challenges of food safety without first understanding how agri-food markets work and then constructively engaging with policy-makers, regulators, and economic actors to stimulate and achieve continuous improvement in the direction of global best practices.
A PROPER RESPONSE SHOULD REFLECT THE REALITIES OF THE AGRIFOOD SECTOR

- Globalization of sourcing, processing, and retailing

- Basis of competition shifted from firm to supply chains, next to value chains, then value streams, finally global “enterprise”

- Waves of industry consolidation, from retailers back upstream
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- Advances in use of EDI, followed by growing importance of ITC as competitive tool, culminating in Big Data and micro-targetting

- Initially, emergence of rules-based trade and commerce under WTO, succeeded by rise of private standards, which proliferated

- Fulcrum of value creation and retention moved downstream

- Relentless push to cut costs, especially upstream
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Plus ça change...

An agribusiness commodity system, as defined by the author, encompasses all the participants involved in production, processing, and marketing of a single farm product. Such a system includes farm suppliers, farmers, storage operators, processors, wholesalers, and retailers involved in a commodity flow from initial inputs to the final consumer. It also includes all the institutions which affect and coordinate the successive stages of a commodity flow, such as the government, futures markets, and trade associations.
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CRITICAL FOOD SAFETY CHALLENGES FACED BY CENTRAL AMERICA IN NTAE BOOM PERIOD

Re-registration of EBDCs under FIFRA (esp. use of Chlorothalonil)

Cyclospora cayetanensis in red raspberries

Staphylococcus aureus and E. Coli in artisanal cheese

Salmonella in melons
INITIAL RESPONSES SUPPORTED BY USG IN CENTRAL AMERICA

> Awareness raising for growers and exporters

> Significant program of training in IPM and Appropriate Use of Pesticides carried out by Escuela Agricola Zamorano

> First public/private partnership in Guatemala through PIPA'A (Programa Integral de Proteccion Agricola y Ambiental)

> Bringing cognizant EPA and FDA officials to the region to frame a proper prevention and mitigation program for pesticides in specialty vegetables, coupled with modification of country-wide automatic detention

> Model program for Cyclospora designed jointly with FDA, PMA, FMI
**THERE ARE MANY TYPES OF FOOD/WATER SAFETY HAZARDS OF CONCERN**

- Pesticides
- Parasites
- Natural Toxins
- Microbial Pathogens
- Additives
- Colorants
- Allergens
- Foreign Matter
WHY FOOD SAFETY MATTERS TO THE WORLD BANK

The lack of safety in food causes great harm to individual health, nutritional status, and productivity, especially for women, children under five, and the vulnerable.

It weakens the competitive position of producers, industries and countries in which ag-based enterprise is a significant contributor to economic activity.
WHY FOOD SAFETY MATTERS TO THE WORLD BANK

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It weakens the competitive position of producers, industries and countries in which ag-based enterprise is a significant contributor to economic activity.

It interferes with crosscutting objectives such as youth and employment, gender empowerment, and enterprise development.

It necessitates remedial treatment and mitigation measures that often cost much more than prevention would have cost.

It reduces GDP directly and indirectly.
*NOTIONAL AGRI-FOOD SUPPLY CHAIN

Urban Consumers
- HRI outlets
- Chain Stores

Foodservice
- Wholesalers
- Urban Consumers

Importers
- Exporters

Financial Service Providers

Storage Providers
- Assemblers
- Trucker Traders
- Producers
- Input Suppliers

Buying Traders
- Small Retailers

Processors
- Wet Markets
- BDS Providers
SUPPLY CHAIN MAP FOR MILLED RICE

- Noodles
- Wrappers
- Cakes
- Dumplings

Liquid Rice Products
- Rice Bran Oil
- Beer & Wine
- Vinegar
- Milk

Convenience Foods
- Cereals
- Crackers
- Canned
- Parboiled

Other
- Starch
COMPLETE VALUE STREAM FOR OIL PALM
*SUBSIDIARY VALUE CHAINS
WHICH FOOD SAFETY CHALLENGES TO ADDRESS IS NOT AN EASY DECISION

Objective criterion?

- Relative severity of the hazard itself (in terms of human health effects)?
- Potential to reduce prevalence?
- Potential to reduce exposure?
- Dose-response relationship?
- Numbers of individuals at risk?
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  - Potential to reduce exposure?
  - Dose-response relationship?
  - Numbers of individuals at risk?

KPIs? (e.g. DALYs, QALYs)

Feasibility of measuring change?

Benefit/cost ratio of interventions?

Focus? (global, regional or domestic markets)

Highest Value Targets? (subsectors, clusters, value chains, industries)

Policy-maker preferences? (market access, crisis avoidance)
FOODBORNE HAZARDS (2007-15) ASSESSED BY WHO

<table>
<thead>
<tr>
<th>PDTF</th>
<th>CTTF</th>
<th>EDTF (HAZARDS CAUSING HEALTH EFFECTS OTHER THAN ENTERIC DISEASE)</th>
<th>EDTF (HAZARDS CAUSING ENTERIC DISEASE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascaris spp.</td>
<td>Aflatoxin</td>
<td>Brucella spp.</td>
<td>Bacillus cereus¹</td>
</tr>
<tr>
<td>Echinococcus multilocularis</td>
<td>Arsenic</td>
<td>Clostridium botulinum³</td>
<td>Campylobacter spp.²</td>
</tr>
<tr>
<td>Echinococcus granulosus</td>
<td>Cadmium</td>
<td>Hepatitis A virus</td>
<td>Cryptosporidium spp</td>
</tr>
<tr>
<td>Clonorchis sinensis</td>
<td>Cassava cyanide</td>
<td>Listeria spp.</td>
<td>Clostridium perfringens¹</td>
</tr>
<tr>
<td>Fasciola spp.</td>
<td>Dioxin</td>
<td>Mycobacterium bovis</td>
<td>Entamoeba histolytica</td>
</tr>
<tr>
<td>Intestinal flukes⁴</td>
<td>Lead</td>
<td><em>Salmonella enterica (invasive infections) non-typhoidal</em></td>
<td>Enteropathogenic <em>E. coli</em> (EPEC)</td>
</tr>
<tr>
<td>Opisthorchis spp.</td>
<td>Methyl mercury</td>
<td><em>Salmonella enterica Paratyphi A</em></td>
<td>Enterotoxigenic <em>E. coli</em> (STEC)</td>
</tr>
<tr>
<td>Paragonimus spp.</td>
<td>Peanut allergens⁵</td>
<td><em>Salmonella enterica Typhi</em></td>
<td>Giardia spp.</td>
</tr>
<tr>
<td>Taenia solium</td>
<td></td>
<td><em>Salmonella enterica (non-invasive infections) non-typhoidal</em></td>
<td>Norovirus</td>
</tr>
<tr>
<td>Toxoplasma gondii⁶</td>
<td></td>
<td>*Salmonella enterica Shiga toxin-producing <em>E. coli (STEC)</em></td>
<td>Shigella spp.</td>
</tr>
<tr>
<td>Trichinella spp.</td>
<td></td>
<td><em>Staphylococcus aureus¹</em></td>
<td><em>Vibrio cholerae</em></td>
</tr>
</tbody>
</table>

Key: PDTF = Parasitic Diseases Task Force; CTTF = Chemicals and Toxins Task Force; EDTF = Enteric Diseases Task Force
OVERVIEW OF FOODBORNE HAZARDS (2010)

> 31 foodborne hazards causing 32 diseases are included: 11 diarrheal disease agents (1 virus, 7 bacteria, 3 protozoa); 7 invasive infectious disease agents (1 virus, 5 bacteria, 1 protozoon); 10 helminths and 3 chemicals.

> Together, the 31 global hazards caused 600 million (95% uncertainty interval [UI] 420–960m) foodborne illnesses and 420,000 (95% UI 310,000–600,000) deaths.

> Diarrheal disease agents, particularly norovirus and Campylobacter spp were the most frequent causes of foodborne illness, causing 230,000 (95% UI 160,000–320,000) deaths, particularly from non-typhoidal Salmonella enterica (NTS), which causes diarrheal and invasive disease.

> Other major causes of foodborne deaths were Salmonella Typhi, Taenia solium, hepatitis A virus, and aflatoxin.

> The global burden of foodborne disease by these 31 hazards was 33 (95% UI 25–46) million DALYs.
EXAMPLES OF WELL-PUBLICIZED FOODBORNE DISEASE OUTBREAKS

<table>
<thead>
<tr>
<th></th>
<th>1980s</th>
<th>1990s</th>
<th>2000s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEVELOPED COUNTRIES</strong></td>
<td>Beef hormones (European Union)</td>
<td><em>E. coli</em> in hamburgers (U.S.)</td>
<td>Contaminated olive oil (Spain)</td>
</tr>
<tr>
<td></td>
<td><em>Salmonella</em> in eggs and chicken (U.K.)</td>
<td><em>BSE</em> (U.K.)</td>
<td>Staphylococcus in milk (Japan)</td>
</tr>
<tr>
<td></td>
<td>Alarin apples (U.S.)</td>
<td><em>Cyclospora</em> in raspberries (U.S., Canada)</td>
<td><em>E. coli</em> in spinach, carrot juice (U.S.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Dioxins</em> in animal feed (Belgium)</td>
<td><em>Listeria</em> in ready-to-eat meat (Canada)</td>
</tr>
<tr>
<td><strong>DEVELOPING COUNTRIES</strong></td>
<td>Hepatitis A, raw oyster, 300,000 cases (Shanghai, China)</td>
<td><em>Salmonella typhimurium</em>, more than 1,000 cases, meat products (Ningxia, China)</td>
<td><em>E. coli</em> O157:H7, various animal foods, 20,000 cases, 177 deaths (Jiangsu and Anhui provinces in China)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Melamine in milk (China)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>Maize</em> contaminated with aflatoxins (Kenya)</td>
</tr>
</tbody>
</table>

*Bovine spongiform encephalopathy.*

Source: Adapted from Jaffee, Henson, and Rios, *Making the Grade*..., 2011
*7 OF 10 TOP GLOBAL RETAILERS ARE IN THE FOOD BUSINESS

<table>
<thead>
<tr>
<th>Top 250 rank</th>
<th>Name of company</th>
<th>Country of origin</th>
<th>2013 Retail revenue (US$mil)</th>
<th>2013 Retail revenue growth</th>
<th>2013 Net profit margin</th>
<th>2013 Return on assets</th>
<th>CAGR* Retail revenue 2008-2013</th>
<th>% countries of operation</th>
<th>% retail revenue from foreign operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wal-Mart Stores, Inc.</td>
<td>U.S.</td>
<td>476,294</td>
<td>1.5%</td>
<td>3.5%</td>
<td>8.2%</td>
<td>3.3%</td>
<td>28</td>
<td>28.9%</td>
</tr>
<tr>
<td>2</td>
<td>Costco Wholesale Corporation</td>
<td>U.S.</td>
<td>105,156</td>
<td>6.1%</td>
<td>2.0%</td>
<td>6.8%</td>
<td>7.7%</td>
<td>9</td>
<td>28.2%</td>
</tr>
<tr>
<td>3</td>
<td>Carrefour S.A.</td>
<td>France</td>
<td>98,688</td>
<td>-2.4%</td>
<td>1.8%</td>
<td>3.1%</td>
<td>-3.0%</td>
<td>33</td>
<td>52.7%</td>
</tr>
<tr>
<td>4</td>
<td>Schwarz Unternehmens Treuhand KG</td>
<td>Germany</td>
<td>98,662*</td>
<td>9.5%</td>
<td>n/a</td>
<td>n/a</td>
<td>6.5%</td>
<td>26</td>
<td>58.2%</td>
</tr>
<tr>
<td>5</td>
<td>Tesco PLC</td>
<td>U.K.</td>
<td>98,631</td>
<td>-2.0%</td>
<td>1.5%</td>
<td>1.9%</td>
<td>2.9%</td>
<td>13</td>
<td>32.3%</td>
</tr>
<tr>
<td>6</td>
<td>The Kroger Co.</td>
<td>U.S.</td>
<td>98,375</td>
<td>1.7%</td>
<td>1.6%</td>
<td>5.2%</td>
<td>5.3%</td>
<td>1</td>
<td>0.0%</td>
</tr>
<tr>
<td>7</td>
<td>Metro AG†</td>
<td>Germany</td>
<td>86,393*</td>
<td>-2.5%</td>
<td>0.7%</td>
<td>1.4%</td>
<td>-0.9%</td>
<td>32</td>
<td>62.3%</td>
</tr>
<tr>
<td>8</td>
<td>Aldi Einkauf GmbH &amp; Co. oHG</td>
<td>Germany</td>
<td>81,090*</td>
<td>4.7%</td>
<td>n/a</td>
<td>n/a</td>
<td>5.5%</td>
<td>17</td>
<td>59.2%</td>
</tr>
<tr>
<td>9</td>
<td>The Home Depot, Inc.</td>
<td>U.S.</td>
<td>78,812</td>
<td>5.4%</td>
<td>6.8%</td>
<td>13.3%</td>
<td>2.0%</td>
<td>4</td>
<td>10.8%</td>
</tr>
<tr>
<td>10</td>
<td>Target Corporation</td>
<td>U.S.</td>
<td>72,596</td>
<td>0.9%</td>
<td>2.7%</td>
<td>4.4%</td>
<td>2.9%</td>
<td>2</td>
<td>1.8%</td>
</tr>
<tr>
<td>Top 10²</td>
<td></td>
<td></td>
<td>$1,294,698</td>
<td>2.0%</td>
<td>2.8%</td>
<td>6.0%</td>
<td>3.0%</td>
<td>16.5³</td>
<td>32.5%</td>
</tr>
<tr>
<td>Top 250²</td>
<td></td>
<td></td>
<td>$4,354,562</td>
<td>4.1%</td>
<td>3.4%</td>
<td>5.3%</td>
<td>4.2%</td>
<td>10.2³</td>
<td>24.2%</td>
</tr>
</tbody>
</table>

*Compound annual growth rate
† Metro changed its fiscal year from end of December to end of September. Fiscal 2013 results reported here include the 9 months ended 30 September 2013 plus the quarter ended 31 December 2013 to create a 12-month period equivalent to prior years.
² Sales-weighted, currency-adjusted composites
³ Average
e = estimate
n/a = not available

Sources: Published company data and Planet Retail
*THE “SUPERMARKET” PHENOMENON*

- Global food retail sales in 2014 were about $4 trillion annually, with supermarkets/hypermarkets accounting for the largest share of sales.

- Although Walmart first entered food marketing in the early Nineties, by 2014 it had become the largest retailer by far, with 11,100 stores in 27 countries, and annual sales of $483 billion (4-7 times as much as COSTCO, Kroger, Carrefour, Tesco, Target, and other well-known chains).

- More than half of Walmart sales volume is derived from what would traditionally have been called groceries (including consumer product goods and fresh meat, produce, and seafood).
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- Walmart’s explosive growth caused waves of mergers among grocery chains so by 2014 the top 15 global supermarket companies accounted for more than 30 percent of world supermarket sales.

- Walmart’s vision, philosophy and business practices have arguably been the single most important driver of change in the global agrifood sector.
*CHANGING STRUCTURE: CONSOLIDATION AMONG MAJOR CPG FIRMS
*CHANGING STRUCTURE:
RISE OF FOODSERVICE INDUSTRY

Sales of food-at-home and away-from-home, 1960-2011
Food-away-from-home sales grew more quickly than food-at-home sales over the last half century, but both grew at similar rates during and after the 2007-09 recession

Source: USDA, ERS, Food Expenditure Tables: Table 1
Rise of Foodservice Industry

In 2010, the U.S. food marketing system, including food service and food retailing, supplied about $1.24 trillion worth of food.

Of this total, $594 billion was supplied by foodservice facilities.

Commercial foodservice establishments accounted for the bulk of food-away-from-home expenditures in 2010.
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This category includes full-service restaurants, fast food outlets, caterers, some cafeterias, and other places that prepare, serve, and sell food to the general public for a profit.

Some are located within facilities that are not primarily engaged in dispensing meals and snacks, such as lodging places, recreational facilities, and retail stores.

The hotel/restaurant/institutional retailing channels in Asia are following similar patterns, giving rise to broadline as well as specialized purveyors.
*PROCUREMENT PRACTICES

Production → Yr-Rd Sourcing Multi-regional, -international → Fresh-Cut Processing, Service-oriented Suppliers → Differentiated Produce → Emerging Branding and Private Labels → Streamlined Distribution, Acct-oriented marketing, Category Management

Grower/Shipper-Controlled, Cost Driven
- bananas, pineapples

Retailer-controlled, Revenue Driven
- Branded packaged freshcut salads and fruit
- salad bars, consumer packs

Adapted from Roberta Cook and Rabobank Mexico
*POINT OF DEPARTURE: WHAT BUYERS WANT

Quality and consistency of supply...
*POINT OF DEPARTURE:  
WHAT BUYERS WANT

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...of product that is compliant with applicable official sanitary or phytosanitary (SPS) standards
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...shipped in largest possible volumes
*POINT OF DEPARTURE: WHAT BUYERS WANT

Quality and consistency of supply...
...of product that is compliant with applicable official sanitary or phytosanitary (SPS) standards
...also meets or exceeds the specifications and procurement terms of the market-maker
...shipped in largest possible volumes
...over as long a period as possible
*POINT OF DEPARTURE: WHAT BUYERS WANT

Quality and consistency of supply...

...of product that is compliant with applicable official sanitary or phytosanitary (SPS) standards

...also meets or exceeds the specifications and procurement terms of the market-maker

...shipped in largest possible volumes

...over as long a period as possible

...and delivered at competitive cost
*Achieving More Leverage in a Value Chain

- **Volume-bound Deals**
  - e.g. single load of mangos from exporter to commercial sales agent, shipped on consignment,

- **Season-long Programs**
  - e.g. 250,000 boxes of mangos from exporter to receiver, price for each load set FOB port of exit

- **Multi-year Collaborative Relationship**
  - e.g. one half of total production, from grower-shipper to importer/distributor, with minimum price guarantee

- **Preferred Partner**
  - e.g. exclusive marketing deal between grower/shipper and importer/distributor, with 50/50 split of profits after costs

ACHIEVING MORE LEVERAGE IN A VALUE CHAIN

FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative
**PROS AND CONS OF SOURCING FROM SMALL VERSUS LARGE SUPPLIERS**

<table>
<thead>
<tr>
<th>SMALL-SCALE PRODUCERS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRENGTHS</strong></td>
<td><strong>WEAKNESSES</strong></td>
</tr>
<tr>
<td>• Comparative advantage in managing labor-intensive production activities</td>
<td>• Small-sized holdings, lacking economies of scale</td>
</tr>
<tr>
<td>• Self-supervision, motivation, etc.</td>
<td>• Diversified production in small areas as a risk management strategy, yet, this strategy limits their possibilities to commercialize surplus production</td>
</tr>
<tr>
<td>• Local knowledge</td>
<td>• Nonproximity to the market</td>
</tr>
<tr>
<td></td>
<td>• Education standards that are often low</td>
</tr>
<tr>
<td></td>
<td>• Reluctant to introduce new technology</td>
</tr>
<tr>
<td></td>
<td>• Difficulty in obtaining information, capital, and support</td>
</tr>
<tr>
<td></td>
<td>• Weak in negotiation, often lacking confidence, especially when dealing with traders and companies</td>
</tr>
<tr>
<td></td>
<td>• Adverse to risk (rightly)</td>
</tr>
<tr>
<td></td>
<td>• Need income stability and cannot afford losses</td>
</tr>
<tr>
<td></td>
<td>• Often on inferior land, without access to irrigation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LARGE-SCALE PRODUCERS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRENGTHS</strong></td>
<td><strong>WEAKNESSES</strong></td>
</tr>
<tr>
<td>• Skilled labor</td>
<td>• High overhead cost</td>
</tr>
<tr>
<td>• Market knowledge</td>
<td>• Poor at motivating and instilling a sense of ownership for large numbers of laborers</td>
</tr>
<tr>
<td>• Technical knowledge</td>
<td>• Poor at servicing small and niche markets</td>
</tr>
<tr>
<td>• Inputs purchase</td>
<td></td>
</tr>
<tr>
<td>• Finance and capital</td>
<td></td>
</tr>
<tr>
<td>• Land</td>
<td></td>
</tr>
<tr>
<td>• Output markets</td>
<td></td>
</tr>
<tr>
<td>• Product traceability and quality and safety assurance</td>
<td></td>
</tr>
<tr>
<td>• Risk management</td>
<td></td>
</tr>
</tbody>
</table>

Source: Poulton et al 2004; TechnoServe 2005
*FACTORS THAT INFLUENCE PROCUREMENT FROM SMALL VS LARGER SUPPLIERS

<table>
<thead>
<tr>
<th>PRODUCT AND MARKET CHARACTERISTICS</th>
<th>PRODUCTION AND MARKETING FUNCTIONS</th>
<th>INTERNAL RESOURCES</th>
<th>EXTERNAL RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit value</td>
<td>Supply of minimum volumes</td>
<td>Agro-climatic suitability of growing conditions</td>
<td>Roads infrastructure</td>
</tr>
<tr>
<td>Perishability</td>
<td>Consistency, timing, and duration of supply</td>
<td>Quantity and quality of land</td>
<td>Communications infrastructure</td>
</tr>
<tr>
<td>Technical complexity of production</td>
<td>Adherence with basic quality grades</td>
<td>Irrigation capacity</td>
<td>Airport and seaport capacity</td>
</tr>
<tr>
<td>Stringency of standards</td>
<td>Application of prescribed production practices</td>
<td>Production tools and equipment</td>
<td>Certification services for private standards</td>
</tr>
<tr>
<td>Size and dynamism of market</td>
<td>Production process certification</td>
<td>Communications equipment</td>
<td>Laboratory testing services</td>
</tr>
<tr>
<td>Competitiveness of local and internation markets</td>
<td>Adherence with maximum residue levels for pesticides</td>
<td>Skills and expertise</td>
<td>Certification capacity</td>
</tr>
<tr>
<td>Nature and rate of change in value chain structure and <em>modus operandi</em></td>
<td></td>
<td>Recording-keeping systems</td>
<td>Regulations</td>
</tr>
</tbody>
</table>

Source: Jaffe, Henson and Rios, 2011
*KEY QUESTION: SHOULD USAID PROJECTS CONSTRUCTIVELY ENGAGE WITH TRADERS?

Ag traders oft criticized for:
> Oligopsony
> Price fixing or gauging
> False weights/measures
> Excessive penalties for defects
> Slow payment
> Loan sharking
> Exploiting the weak
> Lack of transparency

Some people want to:
> Curb supposed excesses
> Regulate the traders
> Strengthen hand of smallholders
> Eliminate all middlemen
> Shorten supply chains
> Encourage direct sourcing
HOW DEFINE A TRADER?

- Any economic actor (person, firm, or organization) in a supply chain who procures agricultural products, whether for:
  - Own use
  - Re-sale to another middleman or to consumers in a market (local or distant)
  - Delivery to another handler
  - Delivery to a processor
  - Delivery to a wholesaler
  - Delivery to a retailer
  - Export

- Procurement may be for the producer, for the trader’s own account, or for another actor (e.g. trader, user, consumer) who takes title and/or possession
WHAT IS THE CORE VALUE PROPOSITION OF A TRADER?

Contribute/realize value by investing and taking risks while changing the attributes (identity, quantity, condition, form, presentation), availability, and/or location of agricultural products, e.g.

- Collecting and aggregating small volumes
- Sorting product by type, variety, source, etc
- Culling product that has tangible visual defects
- Testing product for intangible attributes such as moisture
- Sorting first quality product by size, shape, color, etc
- Finding a market for second quality product or rejects
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- Sorting first quality product by size, shape, color, etc
- Finding a market for second quality product or rejects
- Curing then holding less perishable products
- Pre-cooling or refrigerating product
- Minimal processing
- Improving convenience of presentation
- Moving products from source area to distribution centers or end-markets
- Promoting and merchandising products, even branding
ANCILLARY VALUE THAT A TRADER MAY OFFER

- Technical know-how in crop production or post-harvest handling
- Provision of seeds, agrochemicals, packing and packaging materials in kind
- Pre-season advances or in-season credit to farmers
- Provision of spraying, animal traction, mechanization or other services that support the production cycle
- Investment or co-investment in fixed assets (e.g. packing shed or hot water treatment plant)
- Committing to buy product under certain conditions
- Bankable purchase agreement that serves as collateral for bank financing
- Marketing know-how and know-who
- Personal loans (e.g. for school fees, health problems, other contingencies)
- **Support for safer, more nutritious, more sustainable food sourcing**
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*INCREASING EMPHASIS ON ASSURED COMPLIANCE*
*GRADES, STANDARDS, & SPECIFICATIONS FALL INTO SEVERAL CATEGORIES

**Product attributes:** e.g. species, type, variety, size, count, use of PLU stickers, color, maturity, sugar level, cosmetic appearance, organoleptic attributes, presentation, etc

**Process attributes:** e.g. source, origin, COOL, scale, production system, pesticides, GAP/GMP application, HACCP, labor conditions, certifications, traceability, etc

**Transactional attributes:** e.g. palletization, markings, barcoding, RFID, loading patterns, delivery time/place, crossdocking, recovery of pallets, rhythm of deliveries, duration and consistency of supply, handling of problem loads, etc
**CONCENTRATION VS FRAGMENTATION IN ADOPTION OF AGRIFOOD STANDARDS**

![Diagram showing concentration vs. fragmentation in adoption of agrifood standards.]

**Source:** Lee et al, Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries, 2012
*SPECTRUM OF REGULATORY AND MARKET REQUIREMENTS IN AGRIFOOD SYSTEMS

Source: Jaffe, Henson and Rios, 2011
*ENHANCING CAPACITY TO COMPLY WITH PRIVATE AGRIFOOD STANDARDS

Initiatives enhancing industry’s external resources to comply with private standards
- Institutionalizing standard compliance in national policies
- Service provision and institutional infrastructure certification and conformity assessment infrastructure
- Improving/adjusting regulatory frameworks
- Standard diplomacy/advocacy
- Good practices/regulating input suppliers
- Promoting public-private sector dialogue

Initiatives enhancing industry’s internal resources to comply with private standards
- Strengthening Private Sector Organizations (service provision, technical and advocacy roles)
- Access to information on dynamics of standards
- Setting industry code of practice

Firm/farm level:
- On-Farm
  - Awareness
  - Improving knowledge/skills
  - Supporting GAP implementation
  - Crop protocols, Records
  - Technology options to achieve compliance
  - Improving managerial/entrepreneurial skills

- Off-Farm
  - Awareness
  - Improving knowledge/skills
  - Supporting GMP/GHP/HACCP implementation
  - Records
  - Improving managerial/entrepreneurial skills

Source: Jaffe, Henson and Rios, 2011
RECAP OF WAYS TO IMPROVE VALUE CHAIN WORK

- Recognize that procurement decisions turn on the holy grail of sourcing
- Consider volume, value and costs all together
- Become familiar and work with as much of the value stream as possible, not just the predominant value chain, to maximize whole chain impact
- Adopt a whole chain approach, starting from market-makers and moving back upstream, not from producers downstream
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- Adopt a whole chain approach, starting from market-makers and moving back upstream, not from producers downstream
- With market intermediaries, recognize their functions, value added, risks, incentives and disincentives, then constructively engage
- Help producers to gain stacked competitive advantage, first through compliance, next higher productivity, then enhanced leverage within targeted supply chains, and finally diversification/expansion/upgrading
- Use focus groups, trade associations and industry associations to gain informed views on how to improve the enabling environment, then engage
Thanks for your attention and participation!

John E. Lamb
Sr. Adviser
Agriculture, Food Security, Enterprise Development & Food Safety

Silver Spring, MD
301-384-4095
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ROUND 1 QUESTIONS FOR DISCUSSION

(1) In your domestic markets, what are the main food safety risks of concern?

(2) To what extent has food safety figured in your program, and where it has, for only high value markets or also domestic? What challenges did you face? What did you learn?

(3) Do you think that it is better for USAID to focus on upgrading the entire food safety system or addressing selected high priority risk categories
(4) Is it possible to deal with food safety for domestic markets alone, without any connection or reference to exported and imported products?

(5) Do you think that USAID should address food safety challenges mainly by (a) supporting risk-based technology and solutions, (b) working with government on policies and regulations, or working with (c) private sector actors in priority value chains?

(6) Assuming you would like to increase and improve programming in this area, what constraints to overcome and what gaps to fill?