POSTHRVEST SUPPLY CHAIN OF FRUITS & VEGETABLES IN PAKISTAN

Pak-Indonesia Joint Seminar
Horticulture & Agribusiness in Developing Countries
(17 March 2011)

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Postharvest Research & Training Centre (PRTC)
Institute of Horticultural Sciences
University of Agriculture, Faisalabad
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<thead>
<tr>
<th>Area (ooo ha)</th>
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<tr>
<td>Fruits: 857</td>
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<td>Vegetables: 253</td>
<td>Vegetables: 3214</td>
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<td>Potatoes: 145</td>
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<td>Total: 1,477</td>
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# Field Grown Major Fruits & Veggies: Supply Period

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FRUITS
Area under Major Fruits in Pakistan

(000, Hectares)
Production of Major Fruits in Pakistan

(000, Tonnes)
SUPPLY CHAINS

Grower/Contractor → Middle man → Wholesaler (F & V market)

On-Farm Processing

Exporter → Re-grading, packing → Pharia

Exporter → Re-grading, packing

Exporter → Re-grading, packing

Exporter 

Marine → Land → Air

Retailer

Consumer

Farmer Direct Export

Export Markets

Domestic Market
Export Value of Pakistan Fruits

- Fresh fruits, N.S., 14,990, 7%
- Dried fruits, Mixture, 15,865, 7%
- Other Fruits, 11,925, 5%
- Mango, 29,382, 13%
- Dates, 48,310, 22%
- Kinnow, 97,752, 46%

Total: US$ 240 Million

Source: FBS, 2009-10
Fruit Export Markets-Top 10

Fruits Total Value $

- Afghanistan: 22%
- India: 31%
- U.A.E: 8%
- Iran: 7%
- Russian Federation: 9%
- Saudi Arabia: 7%
- U.K: 2%
- Ukraine: 1%
- Kuwait: 7%
- Oman: 2%
Kinnow mandarin

- Best developed industry
- > 120 M $ Export
- > 200 processing units
- Global GAP certified orchards
- Processing facilities
Kinnow Handling & Processing

Harvesting

Washing

Waxing

Drying
Packing for international market
Mango
The King of Fruits
MANGO: A SEASON OF CELEBRATIONS
Mango-High Priority Industry

• Fast developing industry

• > 27.9 M $ Export

• >11 on-farm processing units in progress

• Global GAP certified orchards
Mango Supply Chains in Pakistan

- Grower
- Contractor
- Wholesaler
- Commission Agent
- Processor
- Traders
- Domestic Retailer
- International Market
## Exports Channels

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Export by air</th>
<th>Export by Sea</th>
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<tbody>
<tr>
<td>Middle East</td>
<td>40%</td>
<td>60% (50% open-Top)</td>
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<tr>
<td>Far East</td>
<td>100%</td>
<td></td>
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<tr>
<td>Europe</td>
<td>100%</td>
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<tr>
<td>Others</td>
<td>100%</td>
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</tbody>
</table>

PHDEC
Dates

Sun drying in Khairpur-Sindh

Dr Munir Ahmad, NARC
Banana
THE TEAM IS ALSO HAS THE DUTY TO HARVEST MATURE BANANA FRUIT

THE HARVESTED BANANA FRUIT IS BEING COLLECTED HERE FOR LOADING

BANANA FRUIT IS BEING LOADED CONVENTIONALLY ON TRUCK TO MARKET
Banana Transportation
Banana Walk:
An Auction seen in Local Market
Apple
Apple Grading Plant Quetta

Ref: PHDEC
Peaches
Peaches Packed for Local market
Guava
Guava Packed for Local market

Guava

Guava
VEGETABLES
Area Under Major Vegetables in Pakistan

- Potatoes: 145,000 Hectares
- Onion: 129,000 Hectares
- Chillies: 73,800 Hectares
- Tomatoes: 53,400 Hectares
- Garlic: 6,800 Hectares
- Coriander: 3,800 Hectares
- Turmeric: 8,400 Hectares

(000, Hectares)
Vegetable Production in Pakistan

(000, Tonnes)
Export Value of Pakistan Vegetables

Potato, 50,267, 46%

Onion, 23,165, 21%

Mushrooms, 3,139, 3%

Other Fresh Vegetables, 32,124, 30%

Source: FBS, 2009-10

Vegetables: US$ 108 Million
Vegetable Export Markets - Top 10

- 58% Afghanistan
- 20% Sirilanka
- 9% U.A.E
- 1% Malaysia
- 1% U.K
- 1% Qatar
- 1% Singapore
- 1% Oman
- 0% Saudi Arabia
- 0% Canada
General Flow Chart of Vegetable Supply chain

Harvesting
- Packing
- Transport
- Cold storage for some fruits
- Market
- Middleman
- Pharria
  - palledar
  - Retailer
  - Consumer
Potato Harvest & Handling
Potato Packing for Market
Potato in Market
Onion
Tomato
Carrot
Cauliflower
Farm to Market-Transport
Retailers
Domestic market:
Commission Agents/Middle Men

- Govt Regulated
- Owns shop in the market
- Registered by price control market committee.
- Pays license fee is up to Rs. 5000/annum
- License is renewable annually.
- Pays commission to the market committee i.e.
  - Per-Container: Rs. 500
  - Per-Truck: Rs. 100
  - Per-Bag/box: Rs. 1
QUALITY STANDARDS/COMPLIANCE

- Quality standards
  - **Domestic market**: For some commodities notified/needs conformity regional/international
  - **Export Market**
    - GlobalGAP (Kinnow & Mango)
    - Codex as default standard
    - PakGAP being considered
General Features of F&V industry

- Small scale, Quality, Traceability etc
- Orchard Contractual system
- Disintegrated supply chain
- High losses (Reduced availability, Profitability)
- Complexity of marketing/intermediaries
- Low Export volumes with low Unit price
- Little value addition
Requirements
Supply Chain Perspectives

- Infrastructural (Packhouse, Cold chain, MRL Labs, Markets, Roads etc)
- Technical R&D (Shelflife, Insects, Diseases, etc)
- Technological (Harvest/Handling equipment/procedures etc)
- Human Resource (Skills, Availability)
- Communication /Linkages (Market-R&D-Growers-Exporters)
- Value addition
- Enabling environment
  - Finance, Policy, Legislation
  - Electricity, Security
Government Initiatives & Developments

- Infrastructural developments capacity building: *National Trade Corridor Improvement project*
- Setting up Collection/Common Facility Centers
- Supermarkets Developments
- International Collaboration
  *Australia, USA, UNIDO in mango and Kinnow*
Postharvest Res. & Training Centre
ASLP Mango Supply Chain Project (2007-2009)
To achieve its objective the project has four interconnected areas of activity

1. Improving Product Quality
2. Improving Market Knowledge
3. Building better Supply Chains
4. Capacity Building
ASLP Project Objective

To address key constraints currently limiting the competitiveness of supply chains for Pakistan mangoes.
### UNDERSTANDING PRODUCE SUPPLY CHAIN

<table>
<thead>
<tr>
<th>Farm</th>
<th>Transport</th>
<th>Pack house</th>
<th>Export/Import</th>
<th>Retail</th>
<th>Consumer</th>
</tr>
</thead>
</table>

- **Produce Flow**
- **Cash Flow**
- **Information Flow**

**Postharvest losses along the supply chain**
Maturity Testing & Storage work
Mango Maturity Testing Guide
Harvest maturity testing guides prepared for the local mango industry
Lime wash for Mango de-sapping
Trainings of Stakeholders
Training/Field Demonstrations
Marketing R&D work

Singapore  Australia  Germany

UK  China  Lahore
What did our project achieve?

It demonstrated that Pakistan mangoes can be promoted to satisfied consumers at good prices

• One importer repacked 600 2kg cartons of Chaunsa and promoted them through Cold Storage supermarkets. They sold rapidly at Rs340 per box, or Rs190/kg of fruit
Mango Handling for Export

[Image of a mango and a certificate]

[Image of mangoes in a box]

[Image of a packing house]

[Image of a truck and people handling mangoes]

[Image of a digital thermometer reading 42.7°C]
METRO-Germany
Issues & Challenges-Sea Freight

Overall results were encouraging but for full commercial adoption the following issues needs to be addressed

• Improving Supply Chain logistics (Pre-shipping)

• Meeting customer/consumer expectation (60-70% coloured at distribution)

• Need integrated supply chain

• Specific Technical issues (colour devt, IB in Sindhri, and SER disease in White Chaunsa)
Locally designed Tools & Machinery

Mobile mango de-sapping platform

Mango Pick N Hold clipper

Mango Picker: NARC
FIRMS Project (USAID)
Farm Direct Export

On farm infrastructure Development
Global GAP certification
Direct export
STAR FARM INITIATIVE (GOVT OF THE PUNJAB)

- A Metro subsidiary
- Started from China
- Market driven
New Developments: Supermarkets Network

- Makro
- Metro
- HyperStar
**Strengths**
- Diversity of produce
- Low cost labor
- Large domestic market
- Infrastructure developments

**Opportunities**
- Proximity ME market
- Increasing Int demand
- Excellent business

**Weaknesses**
- Little processing/Value addition
- Lack of on-farm infrastructure

**Threats**
- Diseases and pests
- Quarantine/SPS compliance
- Competition

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**SWOT analysis**
We Grow Beautiful Flowers Too
THANKS

Acknowledgements

ASLP team
Postgraduate Students & Staff
Postharvest Research & Training Centre
Institute of Horticultural Sciences