Post-harvest Loss and Sustainable Development

Steve Sonka, Director
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ADM Institute for the Prevention of Postharvest Loss
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
AGENDA

• Food security/sustainable development challenges

• The "complexities" of post-harvest loss (PHL)

• PHL, agribusiness and development
Global Food Demand Is Predicted to Increase 70% by 2050 (FAO; 2009)

Dietary changes in developing countries
2030 Food Demands Require About 200 Million More Hectares (McKinsey; 2011)

- 2010 demand: 1,535
- Food/feed demand increase: +90
- Land degradation increase: +30
- Climate change impact: +0–45
- Urban expansion increase: +30
- Energy infrastructure increase: +10
- First-generation biofuel demand increase: +15
- 2030 demand: 175–220
- Impact of productivity loss: 1.710–1.755

Assuming 30 percent crop production increase with 1.0 percent per annum yield growth.
Reducing PHL and Increasing Yields Have High Potential (McKinsey; 2011)

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<th>Societal perspective, 2030</th>
<th>Total resource benefit $ billion (2010 dollars)</th>
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1. Energy, Land, Water, Steel
Why Reduce Post-harvest Loss: Some Hypotheses (or Hallucinations?)

- Estimates suggest 1/3 of agricultural production is “wasted” and doesn’t reach food consumer

- Investment required to reduce PHL could be modest

- Technology advances should make reduction more feasible and less expensive

- Arable land, water, energy is in limited supply – reducing PHL can lessen pressure on scarce resources
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Post-harvest loss estimates in South & Southeast Asia

- Cereals: 22%
- Roots & Tubers: 49%
- Oilseeds & Pulses: 30%
- Fruit & Vegetables: 66%

- 22% consumption
- 49% distribution
- 30% processing and packaging
- 66% postharvest handling and storage
- 66% agricultural production

PHL Varies by Commodity (FAO; 2011)
In SE Asia, physical losses range from 15-25%.

Quality losses range from 10-30% (loss in value)
PHL in grains is 18% (2% - 5% in storage) (1992)

PHL in storage in villages is 8% to 10% (farmer storage is primarily through traditional methods) (2006)

PHL higher in fruits & vegetables (2003)
  - Fruits; 20% to 25%
  - Vegetables: 30%

PHL of rice in total exceeds 14%
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Reducing PHL is a LOCAL Activity
“Organizational” Learning is Required for Broader Progress to Occur
Priority Needs

- Measurement of loss
- Investable implementation framework
- Quantum jump/reverse innovation technologies