Postharvest extension and capacity building for the developing world

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Postharvest losses – Global scenario

❖ Postharvest food losses - negative impacts on the world economy, environment and sociological factors.

❖ Money and natural resources invested go waste.

❖ more than 815 million – 1 in 9 on the planet is chronically hungry and malnourished.

❖ Reducing postharvest losses – sustainable way to ensure global food and nutritional security.

(FAO, 2011 & 2015)
Need for Postharvest Capacity Building

❖ Factors responsible for postharvest losses identified and well documented.

❖ Many indigenous as well as modern techniques to control food losses are available.

❖ The proper knowledge and training in postharvest handling of crops is critically lacking especially in developing nations.

❖ Capacity building, education and training about factors affecting and suitable remedies to reduce food losses and wastage.

❖ Create cadre of well-trained postharvest professionals.
Postharvest Capacity Building for the Developing World

❖ Recent advances in postharvest extension or outreach programs, case studies and practical methodologies.

❖ Targeted to facilitate postharvest extension professionals, trainers and outreach specialists.

❖ Authors from Sub-Saharan Africa, South Asia, Central Asia, Latin America, USA, Caribbean and MENA.
Egypt - Training women on reducing postharvest losses of fresh fruits and vegetables

Author: Prof. Saneya Mohamed Ali El-Neshawy

❖ Traditionally women’s role in agriculture have been restricted to specific activities – household farming.

❖ Present day women are keen in involving in innovative production and postharvest activities - processing, packing and marketing.

❖ Major constraints –
  ○ Gap between present innovation status and information known.
  ○ Access to training programs.
Egypt - Training of women- Approach

❖ The information needs varied with different communities.

❖ Identification of needs - Participant women were interviewed and grouped based on the skills.

❖ Topics focussed – Harvesting, grading, packaging, storage and marketing.

❖ Selection of training methods – preliminary training sessions showed that videos, PowerPoint presentations, posters, on-field demonstrations were more efficient.
Egypt - Training of women- Approach

Dr Saneya interacting with women farmers to assess information needs

On-field demonstration of mango harvest and postharvest handling by Dr Saneya
Egypt - Training of women - Case study

“ICT for women empowerment”

- Gender Research in Arab countries into information Communication technology for Empowerment-Middle East and North Africa (GRACE-MENA)
- Train women with basic IT skills to access the agriculture information on internet.
Egypt - Training Topics

❖ Orchard sanitation and disease management.
❖ Postharvest handling and storage.
❖ Cold-chain management
❖ Biological and physical methods of controlling storage diseases.
❖ Food hygiene and sanitation in packhouses.
❖ Food contamination – pest management, mycotoxins, chemical residues.
Egypt - Training of women- Results

❖ Women had access to information from different sources.
❖ The production of high-quality produce increased and hence the net income of producers increased.
❖ Improvement in storage methods and reduction in postharvest losses.
❖ Enhanced relationship between rural farmers and cooperative association at market yards with updated market information.
Tanzania – Investing in trainings - food processing and value addition to reduce losses

Chapter Author: Ms. Bertha Mjawa

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Losses (% quantity)</th>
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</thead>
<tbody>
<tr>
<td>Fruit and Vegetables</td>
<td>Up to 60 %</td>
</tr>
<tr>
<td>Cereals, legumes and nuts</td>
<td>30-40 %</td>
</tr>
<tr>
<td>Roots and tubers</td>
<td>Up to 45 %</td>
</tr>
<tr>
<td>Dairy and fisheries</td>
<td>Up to 80 %</td>
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</tbody>
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❖ Trainings play prominent role in reducing the losses.
❖ Public-Private-Producer Partnerships (4Ps).
Tanzania – Marketing Infrastructure Value Addition and Rural Finance (MIVARF) support

- **MIVARF** – 7 year project – 37,500 beneficiaries – 37 districts.
- **Training** - Postharvest management and Value addition strategies.
- **Matching funds** - Food processing machinery, Postharvest training centers
- **Motto** – ‘Farming as business and not as subsistence for farming families’.
Tanzania – MIVARF – Case study

“The Grande Demam Dairy Processing Industry”

❖ Dr Deo Temba, Usa River, Arusha – veterinary doctor and dairy farmer.
❖ August 2012 – started processing milk to ‘Mtindi’
❖ 3 main pillars – Commitment ; Improved facilities ; Effective marketing.
Tanzania – MIVARF – Case study

Role of MIVARF

❖ Provided matching grants (25%: 75% funding) – equipment and cooling facilities.

❖ **Capacity building** – training industry staff, marketing skills, processing technology, conducting exhibitions, learning visits to other industries in Tanzania and East Africa.

❖ During late 2018 – capacity increased to 4000 L (from 180 L in 2013).
Tanzania – MIVARF – Case study

Outcomes

❖ Reduced dairy losses from 80% to nearly 5%.
❖ Estimated 2500 farmers – contracted beneficiaries.
❖ Assured access of farmers to modern dairy extension services.
❖ Veterinary medicines and supplements – ensure cattle health.
❖ Improve economic status of dairy farmers (~95,000 Shillings (~40 USD) /month/animal).
Tanzania – Postharvest Training and Services Center (PTSC), Arusha

Authors: Ngoni Nenguwo, Roseline Marealle & Radegunda Kessy

❖ PTSC – USAID funded project, led by UC Davis and WFLO
❖ Located – World Vegetable Center (WorldVeg) campus, Arusha.
❖ To exhibit wide range of postharvest tools and to train how to use them.
❖ Target audience – smallholder growers, traders and processors.
❖ Store room, CoolBot room, ZECC and solar drying equipment etc..
Tanzania – PTSC, Arusha

1. Training - NGOs

❖ NGO – Agency for Co-operation and Research in Development (ACORD).

❖ Geita district, NW Tanzania – Pineapple postharvest handling.

❖ Target audience – Technical staff, lead farmers and local agricultural extension workers.

❖ Approach – 2-day training sessions with class-room lectures and field demonstrations.
Tanzania – PTSC, Arusha

1. Training - NGOs

❖ **Topics** – Postharvest handling, grading, packhouse operations, value addition, cooling and storage requirements.

❖ **Results:** Mixed lessons were appreciated and improved understanding of participants on postharvest topics.

❖ **Feedback:**
  - Longer training duration and regular refresher courses requested.
  - Training requirements are different for each stakeholder.
2. Training – Farmer groups - MVIWATA

- MVIWATA – Association of Farmers Groups in Tanzania.
- **Target audience** – Vegetable growers - Morogoro and Lushoto regions
- **Topics** – Postharvest handling of vegetable crops, grading and storage. Emphasis on low-cost evaporative cooled storage structures.
- **Approach** – Practical sessions, followed by group discussion on benefits of different postharvest practices.
Tanzania – PTSC, Arusha

2. Training – Farmer groups - MVIWATA

❖ Training outcomes:

- ZECC constructed and being used by farmers.
- Farmer to farmer promotion of postharvest techniques.
- Increased interaction between PTSC and farmers.
Tanzania – PTSC, Arusha

2. Training – Farmer groups - MVIWATA

Trainees discussing about construction and advantages of the ZECC
Tanzania – PTSC, Arusha

3. Training – Host institute - WorldVeg


❖ Target audiences – WorldVeg staff, Young vegetable growers and trader group.

❖ Topics – Ways to increase market value - postharvest handling, grading packing and storage. Increasing shelf-life and reduce losses.

Approach – Six month training program.
Tanzania – PTSC, Arusha

3. Training – Host institute: WVC

Trainees being taught about advantages of plastic crates over wooden or cardboard boxes
Postharvest Extension and Capacity Building for the Developing World

Other topics:

❖ FLW Assessment methods – current status, challenges and opportunities, CSAM.

❖ Capacity building – Extension systems, and advisory services, trainings.

❖ Trainings – ICTs, animations, e-learning programs, PTSC, monitoring and evaluations
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- User-friendly, interactive icons.
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