Solutions to improve the marketing of tropical fruits in Myanmar

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Myanmar has different topography and could cultivate both tropical and temperate fruits and vegetable in different area.
Myanmar and Fruits

Botataung Pagoda (Yangon)
MFFVPEA stands for “Myanmar Fruit, Flower And Vegetable Producer And Exporter Association”
Current Fruits for Export

Our Current Products:
Fresh Fruit

- SeinTaLone
- Honey Melons
- YinKwae
- Watermelons
To promote the fruit quality and quantities in pre-harvest management

Post- Harvest Management

Food Safety Standard using Certification as Marketing Tools

Market Linkage and Contract Farming

Fruits Festivals and Farmers Market
To promote the fruit quality and quantities in pre-harvest management
Pre-harvest Factors that Impact Postharvest Fruit Quality and Quantity
Pre-harvest Factors that Impact Postharvest Fruit Quality and Quantity

- Genetic Factors
  - Cultivar selection
  - Rootstock selection

- Environmental Factors
  - Light
  - Temperature

- Cultural Practices
  - Pruning
  - Water quality and irrigation
  - Orchard floor management, fertilization, and mineral nutrition

- Disease Treatment

- Pyto-hormones and other Growth Regulators
The cultivar selection plays an important role in quality and quantity of mango production. It is key to select cultivars that have desirable traits (size, texture, color, flavor, etc.) depending on the market.
Cultural Practices

Orchard Floor Management

Orchard’s soils physical and chemical properties need to be maintained in good condition to ensure root growth occurs without issue.

Weeds must be controlled, people and perhaps Machinery need to be able to access the orchard.
Types of Orchard Floor Management

- Cultivation between the rows
- Cover crops
- Mulching
- Keep the soil bare
Works well if there is good moisture in the soil year round

Maintains soil structure, increases water penetration, prevents erosion, and keeps soil temperature low

Legumes can be used which have the added benefit that they fix nitrogen

Does require added labor to control the cover crops
Can use straw, hay, dried grass, wood shaving and chips or any cheap organic matter that is available in large amounts.

In some cases plastic mulches are used but expensive.
Better option in arid regions

No cover means less competition for water and nutrient

But can lead to erosion, leaching, and soil hardening in heavy rain fall areas
Weed Control

- Weeds can lower crop yields if adequate moisture is not available.
- Some weeds can cause sanitary problems with the crops.
- Weed control is key in establishing young orchards. The first 2 – 3 years are key as the trees have not yet established and do not have developed canopy to shade weeds.
A number of mineral elements are needed for plant growth and development; they are broke up into two classes.

Macronutrients: Nitrogen, phosphorus, potassium, sulfur, calcium, and magnesium

Micronutrients: Iron, zinic, boron, manganese, copper, molybdenum, and cobalt
Often they have a relatively low nutrient content so large amounts are needed.

The manure will need time to break down so you will want to apply a few months before the plant needs the nutrients (before new growth).
Plant hormones and plant growth regulators used on pre harvested fruit can affect fruit development before harvest but also affect fruit quality and shelf live after harvest
Post- Harvest Management
Post Harvesting Time
Post Harvest Handling

Harvesting

- Insure the pickers have proper training
  - Know proper maturity indices for variety being harvested
  - Harvest either early or later in the day
  - Gently harvest and handle the fruit
  - Pick fruit from bottom to top of tree
  - Fallen fruit should never be mixed with picked fruits

- Use appropriate containers, bags and tools
  - After harvesting, fruits should be collected in picking bags and gathered in the shade
  - Harvesting containers should be proper size, no sharp edges, and have ventilation
Generalized fruit handling scheme

Harvest by hand

Place into shoulder bag

Pour into field bin

Transport to packing house
Generalized fruit handling scheme

Unload

Culling (sorting)

Disinfestations treatment

Spray with wax and /
or fungicide

Culling (sorting)
Consumers in export markets put a high priority on high yields of desired size and high quality.

Demands from the consumer:

- Size and Shape
- Color
- No Blemishes
- No Disorders
- Texture and Flavor
- Food Safety
Mango Sorting & Packing Line:
Sorting Honey Melon

Sorting & Packing @ Mandalay Division Honey Melon Farm (Year 2012)
Generalized fruit handling scheme

Weight / Color Sorting

Packed into cartons

Cooled

Loaded into shipping containers

Air, land or sea transport to market
Key Postharvest methods to manage quality

- Reduce metabolic rates
- Reduce water loss
- Minimize damage
- Prevent disorder development

Sorting and Packing @ Mango Farm (Year 2012)
Singapore Super Market

Singapore Super Market – On Sales

- Mustafa Centre
- Cold Storage
- NTUC
- Sheng Siong

Malaysia
- EcoSave
Myanmar Sein Ta Lone in Singapore

SeinTaLone Mango

Punnet Packing
- 301g ~ 350g x 2 pc
- 250g ~ 300g x 3 pc
Commodity Center_ Muse_ cross boarder with China
Sorting and Packing of Honey Melon

Honey Melon Sorting and Packing Line
At Singapore Market

Singapore Market Advertisement Poster

@ Cold Storage
Mango Leather Making at Community
Evaporative cool Chamber is … a low-cost, on farm storage structure for the short-term extension of fruit and vegetables shelf life.
Food safety standard using certification as marketing tools
CERTIFICATION FOR FOOD SAFETY

- Organic Certification
- GAP Certification
Food safety hazard is

any chemical,
biological, or
physical substance or property
that can cause fresh fruit to become an
unacceptable health risk to consumers.
Chemical contaminants in fresh fruit and vegetables may occur naturally or may be added during production, harvesting, and postharvest handling of fresh produce.

Some examples of contamination: Agrochemical residues, non-agrochemical contaminants (fuels, lubricants and sanitizers), heavy metals.
Physical hazards are foreign objects that can cause illness or injury to consumers. Contamination can occur during production, harvesting and postharvest handling.

Some examples of contamination: Soil, stones, sticks, weed seeds, wood, metal, plastic, paint flakes, jewelry, personal items
Microorganisms are organisms that are small and can only be seen through a microscope. They are found everywhere in the environment.

Pathogenic microorganisms affect consumers health and cause illness.

Some types of pathogenic microorganisms are bacteria, parasites and viruses.
Organic PGS System initiation in Myanmar
Initiated by ADB Project and IFOAM as technical assistance

PGS Common Themes

1. Shared vision
2. Participatory
3. Transperancy
4. Trust
5. Learning process
6. Horizontality
GAP in the world

GLOBALGAP

Tesco Natures Choice

LEAF

GAP guides

Mexico GAP

ChileGAP

Kenya GAP

IndiaGAP

Freshcare

ChinaGAP

Japan GAP

NZ GAP
1. Food safety,
2. Environmental management,
3. Worker health, safety and welfare and
4. Produce quality.
ASEAN GAP Modules

Food safety

Produce quality

Environmental management

Worker’s health, safety, welfare

Gilberto F. Layese

ASEAN GAP
Management Practices that Reduce Contamination

WORKER AND FIELD SANITATION

- Clean and sanitize storage facilities before harvest, picking tools, harvest bins, packing area, equipment, and floors daily
- Teach workers about proper hand washing
Harvest and Post-harvest Prevention

- Pick dry fruit
- Leave fruit that has bird dropping on them
- Use clean bags or buckets for collection
- Train workers the importance of hand-washing
- Cool fruit quickly
- Exclude animals from orchard and packing facilities
- Use potable and chlorinated water
- Clean bins and containers should be used to transport fruit
Market Linkage and Contract Farming
## Aspects of Food Export Trade Strategies

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<th>Exporter Perspectives</th>
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<td>Excess productive capacity</td>
<td>Trade balance utilizing tariff controls</td>
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<td>Export-led growth policy</td>
<td>Trade balance utilizing non-tariff barrier</td>
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<tr>
<td>Gain foreign reserve, surplus balance of payment</td>
<td>Sincere safety concern of importation of fresh food, plant and live animal</td>
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<tr>
<td>Create employment</td>
<td>Protection of food safety, hygiene and health of consumers</td>
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<tr>
<td>Build global competitiveness – productivity, sustainability, quality</td>
<td>Plant flora and animal health protection</td>
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Developing an exportable product

- Selecting the right product for the right market
- Identify and create the product marketing attributes
- Building the product competitiveness

Building the capacity to export

- Logistics infrastructure *
- Empowering / organizing production capacity of farmers
- Training the workers

Compliance to Standards constraints

- Myanmar mandatory food safety standards
- Voluntary sustainability standards
The WTO SPS Agreement aims at:

1. The protection of animal or plant life or health of a territory from risks arising from the entry, establishment, or spread of pest, disease, disease-carrying organisms, or disease-causing organisms.

2. The protection of human life or health of a territory from risks arising from diseases carried by animals, plants, or products thereof, or from entry, establishment, or spread of pests.

3. The protection of human or animal life or health of a territory from risks arising from additives, contaminants, toxins, or disease-causing organisms in foods, beverages, or feedstuffs.
1. Identify hazards and prevent, eliminate or reduce to acceptable levels,
2. Identify the critical control points (CCP) at steps at which control is essential,
3. Establish critical limits beyond which intervention is necessary,
4. Establish and implement effective monitoring procedures at the CCPs,
5. Establish corrective actions when monitoring indicates a CCP is breached,
6. Implement check procedures to verify measures are working effectively,
7. Keep records to demonstrate effective application of these measures and to facilitate official controls by the competent authority.

**Hazard Analysis and Critical Control Points (HACCP)**

The principles prescribe requirements to be met throughout the cycle of production, processing and distribution, via hazard analysis, identification of the critical points, needed to be kept under control in order to guarantee food safety.
1. Selection of pesticides
   - Confirm permissible use of active ingredient
   - Appropriate and effective active ingredient (toxicity, persistency)
   - Contact or systemic pesticides, avoid broad spectrum pesticides
   - Method of application in the fields (foliar or ground)
   - Method of application post-harvest (washing, waxing, paint)

2. Follow label instructions
   - Dosage, spray calibration (High / low volume)
   - Field coverage
   - Number of repeated spray and frequency of spray
   - PHI - Pre-harvest spray interval

3. Other considerations
   - Mode of Action of active ingredient
   - Weather conditions in the fields before and after pesticides application

The accumulation of residue is the sum of application considerations, its metabolites, and pesticide persistency
Agriculture is a Science

- The farmer needs to understand the biological functions and the chemical consequences of the production systems
- The farmer needs to know the next course of logical responses to any interferences to the crop cycles

Agriculture is a Business

- In business there is always risks involved
- There shall be competition
- The farmer must be aware of the things going-on outside his farm that could have an impact to his marketing his crop
- The farmer must have some form of linkage into the market
Fruits Festivals and Farmer Market
Union of Myanmar Federation of Chamber of Commerce and Industry

Lanmadaw Township, Yangon
Yangon Division

Partnership with
Ministry of Commerce
ANNUAL EXHIBITION, DISCUSSION WITH GROWERS, BROKER AND TRADERS OF MFFVPEA
Exhibition and Discussion Extend to Flowers Growers
Pomelo Exhibition
Exhibition and Competition
Pomelo Competition Prize Winners
Mango Festival 10-12. 5.2014
Mango Festival 10-12. 5.2014
Mango Packing House funded by FAO in Mandalay Region
This market is making linkage directly to consumers and growers who will not need to charge for the brokers. Farmer Market was arranged by MFFVPEA
Market Linkage_ Yangon Division Farmer Market
Farmer Market_ Yangon Division
Support and management of MFFVPEA

Consumers

- Consumer Education Seminars, talk show, media, for quality and safety issues

Input suppliers

- Provide Supplies

Exporter

- Inquires/demand

MFFVPEA

- Facilitate to the whole entire value chain

Buyers

- inform

Growers/Producer groups

- Growers/Producer groups

MFFVPEA

- Trainings- GAP, quality, safety, IPM, post harvest, Access to market-Farmer Markets

30% discount after harvest
40% discount for cash down

MFFVPEA

- Growers/Producer groups

Retailers

MFFVPEA

- MFFVPEA

Wholesaler

Growers/Producer groups

Input suppliers

- Growers/Producer groups

Consumer Education Seminars, talk show, media, for quality and safety issues
First Training Activities

- Selected Students of Agriculture On Job Training to ISRAEL
- Local Growers, Journalist, NGO and INGO staffs
- Business Persons (Hotel, Tourism, Fertilizer ..etc.)
Practical Lessons at Training

- How to formulate Fish Amino Acid
- Fermented Fruit Juice
- Composting with Farm Waste
- Dochatkkhin (Indigenous Microorganism IMO)
- Groundnut Rhizobium and how to culture on local materials.
- *Trichoderma harziaum* inoculation
ORGANIC AGRICULTURE TRAINING NO.II
(18-22.9.2010)
Vermiculture and EM at VFRDC and CARTC, HLEGU, Ministry of Agriculture and Irrigation
Training for Disable Persons
Organic Agriculture Training No. 5
Yatsauk, Southern Shan States
(10 to 14.1.2011) collaborated with Myanmar Agriculture Services
Organic Training Bogalay with GRET INGO
Practical Lessons how to make fertilizer
Balancing with Yield improvement and Sustainability
Agriculture System in Climate-Smart Agriculture
Agriculture System to adapt the Climate Changing

REDUCES AGRICULTURE’S CONTRIBUTION TO CLIMATE CHANGE
- greenhouse gas emissions

+ carbon storage on farmlands

STRENGTHENS RESILIENCE TO CLIMATE CHANGE AND VARIABILITY
Strengths and Limitations

- **Strengths**
  - Members from entire fruit and vegetable supply chain
  - Sound coordination with other related departments, strong resources pool from Institutes, MAS, MAPT, Private sectors (Strong PPP)

- **Limitations**
  - Volunteer based, limited focus on specific model
  - Limited time and financial resources against with expected activities
  - Weak IT system for database, therefore, low efficiency to respond to need of members, other stakeholders and need of market
Future Activities to fulfill our weakness

- Linkage with foreign investment companies for export of fresh fruits and vegetable.
- Discussion with local and foreign people to invest in post-harvest industry for value added products. Value chain system improvement with GIZ.
- Trying to establish cold storage facilities throughout supply chain system and exporting.
- Enhancing the members capacity to participate and keep abreast with ASEAN level growers.
- Connection with SME education center, to develop small scale growers.
Support from GIZ

- Discussion with local and foreign people to invest in post-harvest industry for value added products. Value chain system improvement with GIZ.
Thank You for Kind Attention