ASEAN GOOD AGRICULTURAL PRACTICES

Food Safety Module

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1
Outline of Presentation

1. Brief History of the Development of ASEAN GAP
2. Definition of GAP and Content of Its Four Modules
3. Food Safety Hazards in Food
4. ASEAN GAP – Food Safety Module
5. Prospects of ASEAN GAP – Future Works
# The ASEAN Good Agricultural Practices (GAP) Project

<table>
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<tr>
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<td>Implemented during Phase III of the ASEAN – Australia Economic Cooperation Program (AAECP)</td>
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<table>
<thead>
<tr>
<th>Outcomes</th>
<th>1. Good Agricultural Practices (GAP) standard for the production of fresh fruit and vegetables in the ASEAN region</th>
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<td>2. Establishment of ASEAN GAP Taskforce – to guide the final stages of the drafting of the GAP standard and implementation guidelines</td>
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The ASEAN GAP Regional Standard and its Interpretative Guidelines
The purpose of ASEAN GAP is to:

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<th>facilitate the harmonisation of national GAP programs in the ASEAN region,</th>
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<td>facilitate trade regionally and internationally,</td>
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<td>enhance the safety and quality of fruit and vegetables for consumers,</td>
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<td></td>
<td>enhance the sustainability of the environment in the ASEAN region, and</td>
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<td>protect the health, safety and welfare of workers</td>
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Scope

ASEAN GAP covers both conventional production systems, where produce is grown in the soil, and hydroponic systems where produce is grown in inert media. Production may occur in the open or in a protected environment.

All types of fresh produce are covered by ASEAN GAP except high risk products such as sprouts and minimally processed produce.
ASEAN GAP Strategic Plan of Actions

1. Establish a mechanism to manage ASEAN GAP
   - Develop and implement national GAP programs in ASEAN Member States (AMSs)
   - Align national GAP programs with ASEAN GAP
• Create awareness and knowledge of ASEAN GAP

• Engage the private sector in future development of ASEAN GAP
Updates on the Implementation of ASEAN GAP SPA

Strategic Action #1

Establishment of a mechanism to manage ASEAN GAP

Expert Working Group on ASEAN Good Agricultural Practices (EWG-ASEAN GAP)

1st Meeting

2nd Meeting
Strategic Action #2

Develop and implement national GAP programs in ASEAN Member States (AMSs)

Brunei Darussalam had accomplished the process of establishment of national GAP

Cambodia, Lao PDR and Myanmar in the process of development of their national GAP programmes
Strategic Action #3

Align national GAP programs with ASEAN GAP

By 2011, all ASEAN Member States (AMSs) have totally aligned their national GAP programmes with the Food Safety Module of ASEAN GAP.

By 2012, alignment plans for all AMSs’ national GAP programmes with the other modules of ASEAN GAP will be made available.
# Current alignment of national GAP Programs with ASEAN GAP

<table>
<thead>
<tr>
<th>Country</th>
<th>Food safety</th>
<th>Environmental Management</th>
<th>Worker’s health and safety</th>
<th>Produce quality</th>
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<tbody>
<tr>
<td>Thailand</td>
<td>C</td>
<td>P</td>
<td>P</td>
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<tr>
<td>Malaysia</td>
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<td>Indonesia</td>
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<td>Singapore</td>
<td>C</td>
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<tr>
<td>Philippines</td>
<td>C</td>
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<td>S</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>C</td>
<td>N</td>
<td>N</td>
<td>N</td>
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</table>

T = Total alignment  
C = close alignment  
P = partial alignment  
N = no alignment  
S = covered by another national standard
It mainly aims to institute a mechanism that will ensure full implementation of the ASEAN GAP Strategic Plan.

develop strategies that will enable ASEAN GAP attain international recognition
Broadly, a GAP approach aims at applying available knowledge to addressing environmental, economic and social sustainability dimensions for on-farm production and post-production processes, resulting in safe and quality food and non-food agricultural products.
Contents of ASEAN GAP Modules

Food Safety
• Recommended practices 10 elements.
• Each element has background information to explain how contamination can occur. Specific information is then provided for each practice to explain what is required to implement the practice.

Produce Quality
• Recommended practices 10 elements
• example of a quality plan for production, harvesting and postharvest handling of mangoes – describing hazards that may occur, causes of quality hazards and preventative measures
Environmental Management

- Recommended practices - 13 elements
- Provides information about the potential environmental hazards - negatives impacts that occur to the environment on and off the property as a result of the production, harvesting and postharvest handling of fruit and vegetables.

Workers Health, Welfare and Safety

Recommended practices – 6 elements
This section contains on the four steps to managing the risk of hazards to worker health, safety and welfare – identify the hazards, assess the risk, control the hazards and monitor and review hazards.
Hazard
A biological, chemical or physical **agent** in, or condition of, food with the potential to cause an adverse health effect

Risk
A function of the **probability** of an adverse health effect and the severity of that effect consequential to a hazard(s) in food
Food Safety Hazards in Foods

Food Safety Hazard
is any chemical, biological, or physical substance or property that can cause fresh fruit and vegetables to become an unacceptable health risk to consumers.

Controlling food safety hazards during production, harvesting and postharvest handling (trimming, grading, packing, transport etc) of fresh produce is important to protect consumer health and to gain access to markets.
Types of Hazards

- Microbial
- Chemical
- Physical
Types of Hazards

Sources of Microbial Hazards for Fruits and Vegetables

1. Water
2. Manure
3. Human
4. Air
5. Soil
6. Animals
7. Sewage fluids
Types of Hazards

- Microbial
- Chemical
- Physical

Pesticides
Other Agro-chemicals
Fertilizers
Naturally occurring chemicals
Types of Hazards

Microbial

Chemical

Physical

Any potentially harmful extraneous material not normally found in food such as glass, bone splinters, twigs, metals, buttons, etc. that are likely to cause choking, cuts, injury or other adverse health effects.
ASEAN GAP – Food Safety Module

Major Components

4

- Harvesting and Handling
  - Equipment, containers and materials
  - Buildings and structures
  - Cleaning and sanitation
  - Personal hygiene

- Chemicals
  - Fertilizers and soil additives
  - Agrochemicals
  - Other chemicals

- Planting materials
  - Source and treatments

- Site & water
  - Site history and management
  - Source of water & its microbial quality
Hazards associated with site

- Fecal contamination from overflowing manure storage sites, polluted water sources
- Organic waste
- Agricultural wastes
- Microbial
- Chemical

Agricultural wastes

Site & Water
Recommended practices

Assessment

01
- Previous usage
- Adjacent land use
- Access of wild & domestic animals

What to do next?

02
- Carry out land use plan
- Allow 3 years buffer time for land used for rearing animals

What else can we do?

03
- Look for another site if cannot be remedied
- Plant low risk plants (e.g., plants grown not close to the ground)
- Physical barriers
Site Management

- Land preparation
- Planting design
- Fencing/barriers
- Soil renewal
Assessment of source
Risk for possible contamination is assessed for each operation

Water testing
Where required, tests are conducted at a frequency appropriate for the condition

Where there is risk
Alternative water source is used or the water is treated and monitored

Untreated sewage water
Is not used during production and postharvest handling of produce
**Planting Material**

1. **Careful selection of planting materials**
   - Should be disease-free & non-toxic to human

2. **Source of planting material**
   - Accredited nurseries and Certified planting materials
   - Record keeping

3. **If planting material is produced in the farm**
   - Record of seed treatments as well as of stock plants
   - Ensure workers safety during seed treatment
1. Raw manure or human waste must not be used for vegetable production

2. Natural fertilizer must be fully composted with no foul smell.

3. Heavy metal analysis must be conducted

4. Equipment that come in contact with untreated manure must be properly cleaned
5. Barriers or physical containment should be part of manure storage areas

6. Complete record of fertilizer preparation must be kept

7. Organic fertilizer should be applied pre-planting or in early stages of growth of plant.
Chemicals - Pesticides

1. Use registered pesticides

2. Read and follow the label instructions.

3. Practice Integrated Pest Management (IPM)
Produce should undergo some preparatory steps prior to marketing to command a higher price, to have assurance that it is safe to eat, and to enhance competitiveness in the trading arena.

REMEMBER!!!
Harvesting

Packaging
Sources of contamination during harvesting

**Microbial**
- workers not wearing protective clothing
- personal hygiene of workers
- washing facility for the produce
- containers for harvesting the produce – not elevated

**Chemical**
- sanitizing agent
- containers for harvesting the produce – toxic materials
Harvesting Considerations

Harvest when the foliage is dry to minimize spread of diseases.

Use clean and lined containers.

Keep harvested produce out of the sun to avoid sun injury and unnecessary heating of product.
Harvest and handle gently: cuts, bruises and other injuries increase decay and water loss.

Reduce physical damage by reducing handling steps.

If possible, harvest and directly pack into container in which the product will be marketed.
## Sources of contamination during packaging

### Microbial
- workers not wearing protective clothing
- personal hygiene of workers
- washing facility for the produce
- containers for harvesting the produce – not elevated

### Chemical
- sanitizing agent
  - in case of retail packed produce, non-toxic & clean packaging materials
  - fruit coating material i.e. fruit wax
What are packinghouse operations?

...inside a packinghouse...

...in the field/harvest area “FIELD PACKING”

processes/activities done to prepare fresh produce for marketing, storage or transport maybe done
## Basic requirements of a packing shed

- Close to production area and near thoroughfare
- Minimum area = 20 m²/ton commodity processed at one time
- Elevated to allow adequate drainage
- Elevated to allow adequate drainage
- Well-lighted
- With clean toilet facilities (with water and soap)
- Must have adequate supply of water
Future Works for ASEAN GAP

- Accreditation of AMS GAP Certification Bodies (CBs)
- Aligned GAP Inspector / Auditor Qualification
- Full alignment of national GAPs with ASEAN GAP
- Global Recognition
- Regional Branding
Thank You!