Interpretive guide for ASEAN GAP

Good agricultural practices for
production of fresh fruit and vegetables
in ASEAN countries

Worker Health, Safety and Welfare Module

January 2007

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Australian Government
AusAID

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RMIT International

Quality Assurance Systems for ASEAN Fruit and Vegetables Project
ASEAN-Australia Development Cooperation Project

Contents

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References

The main source of information used to prepare this guide was Farmsafe Australia. The mission of Farmsafe Australia is to lead and coordinate national efforts to enhance the well-being and productivity of Australian Agriculture through improved health and safety awareness and practices. Information on their range of programs is available on the website www.farmsafe.org.au.
The website contains a serious of publications on managing health and safety on fruit and vegetables farms, which are listed in Appendix 2. Many of the publications have been prepared by the Australian Centre for Agricultural Health and Safety (www.acahs.med.usyd.edu). Appreciation is expressed to both Farmsafe Australia and the Australian Centre for Agriculture Health and Safety for the use of their publications as references for preparing this guide.

Project funding

The development of ASEAN GAP is an activity within the project, Quality Assurance Systems for ASEAN Fruit and Vegetables (QASAFV). The QASAFV project is an initiative under the ASEAN Australia Development Cooperation Program (AADCP).

The AADCP is funded by Australia's overseas aid agency, AusAID, and Cardno ACIL Pty Ltd is AusAID's Australian managing contractor for the program.

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1. Introduction

1.1 Purpose and scope of guide

ASEAN GAP is a standard for good agricultural practices to control hazards during the production, harvesting and postharvest handling of fresh fruit and vegetables in the ASEAN member countries. ASEAN GAP is divided into four modules – 1. Food safety, 2. Environmental management, 3. Worker health, safety and welfare and 4. Produce quality.

ASEAN GAP has been developed to enhance the harmonisation of GAP programs amongst the ASEAN member countries. It covers the production, harvesting and postharvest handling of fresh fruit and vegetables on farm and postharvest handling in locations where produce is packed for sale.

This interpretive guide was designed to assist producers, packers, supply chain businesses, trainers, government representatives and others to understand the practices required for implementing the Worker Health, Safety and Welfare Module of ASEAN GAP. It provides guidance on “what has to be done” to implement the required practices. Separate interpretive guides are available for the other ASEAN GAP modules.

1.2 Guide sections

The guide contains background information on types of hazards to worker health, safety and welfare, guidance on implementing the GAP requirements, a self-assessment checklist to review compliance with the requirements, examples of documents and records, a glossary of terms and references and additional information.

Section 2. Hazards to worker health, safety and welfare

Because farming involves many tasks, often requiring machinery, there are many types of hazards for those who work and live on the farm. Every farm and packing shed is different and the particular circumstances and environment of the farm or packing shed need to be considered when managing health, safety and welfare.

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. It describes eight types of hazards and provides examples of what can cause these hazards. A method for assessing the risk of a hazard occurring is presented and alternative approaches to controlling, monitoring and reviewing hazards are described.

Section 3. GAP requirements

The good agricultural practices for controlling hazards to worker health, safety and welfare are grouped into six elements. Each element has background information to explain what can cause the hazard. Specific information is then provided for each practice to explain what is required to implement the practice. In some cases, two or more practices are grouped together as the guidance information is the same for both practices.

Section 4. Self-assessment checklist

The self-assessment checklist enables the producer or employer or advisor to assess the level of compliance with the good agricultural practices contained in this module. The relevance of the practices will depend on the type of produce grown and the systems used for production, harvesting, handling, packing, storage and transport. The person assesses whether the practice is done correctly or if attention is needed or if the practice is not relevant. If attention is needed, the actions required are identified and recorded.

Section 5. Examples of documents and records

The section contains examples of documents and record forms that are required to implement various practices in this module. The documents and record forms are examples only and other methods and formats can be used. ASEAN GAP specifies the information that has to be documented and the records to keep, but does not specify how to document information and keep records.

Appendix 1. Glossary of terms

This appendix contains definitions for the abbreviations and terms used in the guide.

Appendix 2. References and additional information

This appendix contains references and additional information on control of hazards to worker health, safety and welfare. It includes lists of training programs, publications and GAP systems and organisations.

2. Hazards to worker health, safety and welfare

Because farming involves many tasks, often requiring machinery, there are many types of hazards for those who work and live on the farm. Every year, thousands of farm workers are injured and some die in farming accidents. The tragedy of farm accidents is that the victims are often family members working on the property, and in some cases, children who use the workplace as their playground.

Injuries and illness are a large cost to the health and well being of everyone on the farm and deaths cause grief and suffering. As well as the medical cost, there is also time off work, lost production and earnings and increasing insurance.

Everyone on the farm has responsibilities involved in reducing the risk of injury and illness associated with work. Responsibilities of employers include:

- Assessment of health and safety risks to workers and others such as visitors and contractors and implementation of good agricultural practices
- Provision of a safe working environment
- Organisation of safe systems of work
- Maintenance of work areas, machinery and equipment in a safe condition
- Ensuring safe use, handling, storage and transport of hazardous substances
- Provision of adequate information, training, instruction and supervision of workers
- Provision of adequate facilities for the welfare of workers.

Workers also have responsibilities. Workers must take reasonable care of the health and safety of themselves and others, and cooperate with employer to comply with occupational health and safety requirements.

Accidents are preventable and there are many things a farmer can do to protect workers from injury and illness by being aware of hazards to health, safety and welfare. While there are many common hazards on fresh produce farms and packing sheds, every farm and packing shed is different. The particular circumstances and environment of the farm or packing shed need to be considered when managing health, safety and welfare.

The steps to managing the risk of hazards to worker health, safety and welfare are as follows:

1. Identify the hazards – What can happen to worker health, safety and welfare if something goes wrong?
2. Assess the risk – What is the likelihood and consequence of the hazard occurring?
3. Control the hazard – What good agricultural practices are required to prevent or minimise the risk of injury and illness?
4. Monitor and review hazards – Are the good agricultural practices working and have there been any changes that introduce new hazards?

2.1 Identify the hazards

People working on fresh produce farms and packing sheds are exposed to risk of injury and illness associated with a range of hazards. The first step to improving health, safety and welfare is to identify all the hazards that may occur. It is useful to involve workers (including family members) in identifying hazards. Workers should be encouraged to report any unsafe working conditions and to advise when attention is needed and where systems can be made safer.

The table below lists the common hazards that occur during production, harvesting, handling, packing, storage and transport of fresh produce. The most common cause of injury and illness is associated with the use of machinery, equipment and vehicles.

Types of hazards	Causes of hazards (examples only)
Mechanical	Exposed moving parts of machinery, equipment and vehicles, working at heights, heavy manual lifting
Chemical	Inappropriate storage, handling and application of pesticides, handling of hazardous substances
Biological	Contamination of water, equipment, containers, materials, produce and worker facilities with microorganisms that cause human illness, infectious diseases from animals and pests (eg leptospirosis)
Electrical	Overhead powerlines, faulty equipment and electrical leads and sockets
Solar radiation	Excessive exposure to sun and heat
Noise	Loud machinery, equipment and vehicles
Stress and fatigue	Long working hours, continuous work without rest periods
Welfare	Exploitation of age, gender and race

2.2 Assess the risk

Where a hazard has been identified, an assessment of the risk associated with the hazard must be made. The degree of risk is a combination of the consequence (potential severity) of the injury or illness and the frequency of exposure to the hazard. Where the risk is high, urgent action to prevent the hazard should be planned. The following table is useful in determining the relative significance of risks.

Consequence of injury or illness	Frequency of exposure to hazard			
	Daily	Weekly	Monthly	Rarely
Die or disable	High	High	High	High
Time off work	High	High	Medium	Medium
First aid	High	Medium	Low	Low

Source: Managing farm health and safety, Farmsafe Australia Inc.

2.3 Control the hazards

Once hazards of significant risk have been identified, good agricultural practices should be planned and implemented to prevent or minimise the risk of the hazards occurring. Generally eliminating the hazard is the most effective solution and every effort should be made to eliminate hazards of high risk. However, practicalities and cost often limit this option. Control measures from most to least effective are:

1. Eliminate the hazard – remove the hazard from the workplace.
2. Substitute for a hazard of lower risk – substitute for something that will do the same job, but is a lower risk.
3. Isolate the hazard from workers – design for safety and guarding.

4. Design safer work procedures and practices and provide training and instructions.
5. Use personal protective equipment where workers can not be protected from a hazard by other control measures.

Keeping records of important practices provides evidence of what has been done to manage the risks to worker health, safety and welfare. The records also help the farmer to check that practices are done properly and areas for improvement. Section 5 contains examples of relevant record forms.

2.4 Monitor and review hazards

It is important to monitor and review the risks to worker health, safety and welfare. This can be achieved by:

- Using a self assessment checklist to check that the good agricultural practices are being done correctly and are working – Section 4 contains an example checklist.
- Identifying hazards that result from changes in work practices or when new machinery, equipment or vehicles are used.
- Continuing to look for new hazards, assessing them as soon as they are noticed and implementing control measures.

3. GAP requirements

The good agricultural practices for controlling hazards to worker health, safety and welfare are grouped into six elements. Each element has background information to explain what can cause the hazard. Specific information is then provided for each practice to explain what is required to implement the practice. In some cases, two or more practices are grouped together as the guidance information is the same for both practices.

3.1 Chemicals

Chemicals are used during the production of fresh produce for control of pests (pesticides), regulation of growth and thinning of crops, and after harvest for treating produce for insect or disease control, applying surface coatings to reduce moisture loss or improve appearance, and for sanitising water and equipment surfaces.

The major health hazard from use of chemicals is poisoning resulting from short or long term exposure. The carrier or solvent component of pesticides may also affect health. Absorption can occur through inhalation, skin absorption, ingestion or eye contact. Exposure can also occur indirectly through contamination of the air, water and food. Some chemicals are flammable and require safe storage to prevent fires.

The effects of chemical poisoning may occur quickly or develop gradually over a long period of time. There is a great variation in susceptibility between individuals. People who are prone to allergies are probably at greater risk of illness after exposure to chemicals. The more often a chemical is used and the longer the period over which it is used, the more likely it is that damaging exposure will occur.

Any person who lives or works on a farm or in a packing business where chemicals are stored and used is at risk to this hazard. The people who are more at risk are:

- People involved in chemical application and storage
- People who handle produce treated with chemicals after harvest
- People who enter sprayed fields or crops
- People who handle contaminated articles – for example, spray equipment and clothing
- Bystanders who may be accidentally exposed

The likelihood of exposure to chemicals and subsequent health effects is influenced by the following factors:

1. The chemical handler

    - Level of training
    - Age – very old or very young are more at risk
    - Attitude
    - Body weight – low weight more at risk
    - Susceptibility to allergies

2. The chemical

- Toxicity
- Application method – risk higher for higher volume application
- Handling of the concentrate during mixing
- Interaction when chemicals are mixed

3. The working environment

- Inadequate ventilation increases risk
- High temperature and /or humidity increases risk as people are less likely to use protective equipment and clothing
- High wind increases risk
- Waterways close to where chemicals are stored and applied increases risk of indirect contamination

Exposure to chemicals can be prevented or the risk minimised through good agricultural practices aimed at the safe use of chemicals.

Practice 1. *Chemicals are handled and applied by authorised workers with appropriate knowledge and skills.*

Workers must be authorised to handle and apply chemicals. Training is important to ensure that workers have an appropriate level of knowledge and skills to do their jobs safely and effectively. For example, the person who has overall responsibility for chemical use must have knowledge about all aspects and be able to train other workers. A worker who applies the chemical must have knowledge and skills on preparing the formulation and the operation of equipment

Source: Mr. S. Menon, QA Plus Asia-Pacific Sdn. Bhd., Malaysia

Figure 1. Workers must be trained in chemicals use to ensure they have appropriate knowledge and skills to handle and apply chemicals.

Evidence is required to show that people are authorised and have been trained to the appropriate level. This may vary from a certificate from a formal training course to a note in a log book or an entry on a record form. The information to record is the person's name, date of training and job or task. An example of a job responsibility and training record is contained in Section 5. Example documents and records.

Practice 2. *Chemicals are stored in a well lit, sound and secure structure, with only authorised people allowed access. The structure is located and constructed to minimise the risk of contaminating workers and equipped with emergency facilities in the event of a chemical spill.*

Chemicals must be stored in a well lit, sound and secure structure with access restricted to authorised people. The structure must be located in an appropriate place, constructed to protect the chemicals from weather exposure, and equipped with emergency facilities to contain spillages. The structure may be stand alone or located inside another building. For example if small quantities of chemicals are stored, a locked cupboard with shelves would be a suitable structure provided it is separated from packing, storage and handling areas.

Figure 2. Chemicals must be stored in a well lit, sound and secure structure, with only authorised people allowed access.

Measures to minimise the risk of exposure to chemicals include:

- Locate the structure away from water sources and where the risk of flooding is high
- Use a cool, waterproof structure that keeps chemicals out of direct sunlight and severe weather exposure.
- Use an impervious floor (for example concrete), with bunding around the floor to contain any spills or leaks and also prevent water entering.
- Avoid fumes by ensuring good ventilation.
- Install lighting so that chemical labels can be read clearly.
- Keep the structure locked to ensure that children and unauthorised people are kept out.
- Keep a spill kit (shovel and dry sand or soil) in a clearly visible and accessible area.
- Install washing facilities close to the storage area – for example a low pressure hose for washing eyes and preferably a shower.
- Do not store pesticides with chlorine or fertilisers containing ammonium nitrate, potassium nitrate or sodium nitrate as spillage may cause explosions.

Keeping records is important to identify the chemicals that have been purchased and applied and who is authorised to handle and apply chemicals. Examples of chemical inventory, spray diary and chemical authorisation forms are included in Section 5. Examples of documents and records.

Practice 3. *Chemicals are stored in the original container with a legible label and according to label directions or instructions from a competent authority. If a chemical is transferred to another container, the new container is clearly marked with the brand name, rate of use and withholding period.*

Chemicals must be stored in the original container with a legible label to avoid using the wrong chemical or application rate or mistaken use of the chemical as a drink or for preparation of food. The only occasion when a chemical should be transferred to another container is when the original container is damaged. The new container must be marked with the chemical brand name and information from the original label must be available to prevent incorrect use. Farm chemicals must never be stored in a drink or food container.

Practice 4. *Where there is a significant risk of chemical contamination of workers, Material Safety Data Sheets or safety instructions from chemical labels are readily available.*

The Material Safety Data Sheet (MSDS) and chemical label contain the necessary information required in event of accidental exposure to a chemical. This information includes how to treat the person who has been exposed and procedures for cleaning up the chemical. Extra safety information and MSDS are available from suppliers of chemicals. The MSDS or safety instructions must be readily available near where chemicals are stored and handled. For example they may be stored in a folder or container in the chemical storage or mixing area.

Practice 5. *Facilities and first aid measures are readily available to treat workers contaminated with chemicals.*

First aid kits should be readily available to treat workers who are exposed to chemicals. The size of the kit will vary according to the number of workers on the farm. The kit should include a towel, clean clothing, an approved mask or mouthpiece for expired air resuscitation, disposable eye wash bottle and eye wash solution, soap and a nail brush. Access to fresh water should also be readily available. At least two people on the farm need to be trained in first aid.

Practice 6. *Accident and emergency instructions are documented and displayed in a prominent location within or close to the chemical storage area.*

Instructions on actions to take in the event of an accident or emergency situation need to be document and displayed in a prominent location within or close to the chemical storage area. The instructions should include information such as:

- Symptoms of poisoning – chest pain, nausea, blurred vision, excess saliva in the mouth, difficulty in

breathing

- Emergency telephone numbers – for example, doctor and hospital
- Location of MSDS and safety instructions from chemical labels
- Actions to clean up chemical spills

Practice 7. *Workers handling and applying chemicals and entering newly sprayed sites are equipped with suitable protective clothing and equipment for the chemical used.*

Practice 8. *Protected clothing is cleaned and stored separately from crop protection products.*

Workers must be provided with protective clothing and safety equipment when handling and applying chemicals and when entering sites that have just been sprayed with chemicals. Different chemicals require different precautions and these instructions will be on the label and MSDS. Protective clothing and equipment should be stored separate to chemicals.

Examples of protective clothing and equipment are:

- PVC aprons – easy to wear and clean and give good protection against spills and splashes when opening, mixing and decanting chemicals.
- Goggles, face shields and respirators – should be worn when there is a danger of splash or inhalation, refer to the label instructions or MSDS for guidance on the type of respirator to use.
- Long sleeved shirt, overalls or long trousers (trouser legs outside boots), waterproof gloves, water resistant boots and washable hat – keep a change of clothing if there is a high risk of being contaminated with chemicals.

Protective equipment should be maintained to ensure that it is fully functional. For example, use and change filters of respirators according to the manufacturer's instructions. Contaminated clothing should be changed daily or whenever it becomes damp with chemical and washed separately from the general laundry. Discard any clothing that becomes saturated with chemicals. Check gloves for tiny holes by filling the gloves with water and squeezing.

Source: Department of Agriculture, Malaysia

Figure 3. Workers handling and applying chemicals and entering newly sprayed sites must be equipped with suitable protective clothing and equipment for the chemical used. Note that trouser legs should be outside of the boots to prevent the chemical running down inside the boot.

Practice 9. *Access to sites where chemicals are being applied or newly applied is restricted for an appropriate period relevant to the chemical used.*

Practice 10. *If required, chemical application in areas of public access is marked with warning signs.*

When chemicals are being applied or have just been applied, access to the site should be restricted for an appropriate period depending on the type of chemical used. Check the MSDS or chemical label for information on restricting access. Where the site is in an area of public access, warning signs should be placed at the entry point. For example is the site is beside a road, place a warning sign on the boundary.

3.2 Working conditions

General

Practice 11. *Working conditions are suitable for workers and protective clothing is supplied where conditions are hazardous to workers.*

When conditions are hazardous to workers, measures need to be taken to prevent or reduce the risk of hazards to health and safety. Every farm and packing shed is different. The farmer or employer needs to look at all jobs and identify what can go wrong and what measures are needed to control hazards.

Examples of control measures for potential hazards are:

- Tractors – fit a rollover protective structure and safety access platform to reduce the risk of rollover and runover.
- Ladders, platforms and stairs – steps and ladder rungs and bolts are firm, high ladders have fallback protection.
- Heat stress and skin cancer – protective clothing and sunburn cream is provided where workers are exposed to the sun for long periods.
- Storage of packaging materials – storage in overhead areas is secure and floors around racking and shelving is clear of rubbish.
- Floors and walkways – oil and grease spills are cleaned up immediately and floors are kept dry when used by workers.
- Lighting – adequate lighting is provided for each job.
- Electrical – broken plugs, sockets and switches are repaired, frayed or damaged leads are repaired or discarded, overhead power lines within reach are protected and warning signs are used.
- Work benches and tables – benches and tables are kept clear of rubbish and sharp edges.
- Noise – ear protection is provided in areas of loud and constant noise.
- Stress and fatigue – adequate rest periods and shade and water are provided for workers, work hours are not excessive, levels of dust are kept to a minimum.

Figure 4. Working conditions must be suitable for workers and protective clothing is supplied where conditions are hazardous to workers. For examples, protective clothing is provided where workers are exposed to the sun for long periods and benches and tables are kept clear of rubbish and sharp edges.

Practice 12. *All farm vehicles, equipment and tools, including electrical and mechanical devices, are adequately guarded and maintained and inspected on a regular basis for potential hazards to users.*

The most serious injuries and deaths occur from mechanical and electrical hazards when using vehicles, equipment and tools. Common mechanical hazards are entanglement in exposed, moving parts and crushing from machinery failure or unsuspected lowering or movement. Electrical hazards are typically caused by faulty electrical parts. Chemical hazards from poisonous exhaust emissions and noise, heat, vibration and ergonomic hazards can also occur.

All vehicles, equipment and tools must be adequately guarded and maintained and inspected on a regular basis for potential hazards to users. The factors to consider when assessing the risk of hazards are the type of machine, equipment and vehicle, the environment in which it is used, the operator and the interaction between all of these.

Figure 5. All vehicles, equipment and tools must be adequately guarded and maintained and inspected on a regular basis for potential hazards to users.

Effective guarding is essential for all moving, exposed parts that are within reach of the operator or passer-by. Guarding should also cover machinery parts where the surface temperature exceeds 120°C. Guards must be put back if removed for maintenance and damaged guards should be replaced.

Practice 13. *Safe manual handling practices are followed to minimise the risk of injury from lifting heavy objects and excessive twisting and reaching movements.*

Manual handling means any activity requiring the use of force to lift, lower, push, pull, carry or otherwise move,

hold or restrain any static or moving load. Heavy lifting, work requiring poor posture and repetitive work can lead to back, joint and muscle problems.

Safe manual handling practices are designed to reduce the human requirement to lift excessive weights, bend or twist, exert excessive push/pull forces, adopt uncomfortable postures for long periods and minimise repetitive work. Examples of safe practices are:

- Use mechanical aids such as slings, hoists, trolleys, wheelbarrows and conveyors.
- Use smaller size and lightweight containers, bags, and materials.
- Deliver and place heavy containers, bags, and materials as close as possible to work areas.
- Substitute manual handling of fertiliser bags with bulk bags and mechanical handling equipment.
- Make bench heights suitable to the person doing the job.
- Place tools within easy reach.
- Train workers in safe manual handling and encourage early report of injuries.
- Provide protective clothing and equipment such as gloves.

Figure 6. Heavy lifting, work requiring poor posture and repetitive work can lead to back, joint and muscle problems.

Personal hygiene

Farm workers (family members and employees) can transfer biological hazards to other workers either through direct contact or indirectly through contamination of produce, water, toilet, hand washing facilities, eating utensils and lunch facilities.

The microorganisms that are spread by workers include the bacteria, Staphylococcus aureus, Shigella spp. and Salmonella spp. and the viruses, Hepatitis A virus, Norwalk and Norwalk-like viruses, and small round shaped viruses (SRSV's).

Poor personal hygiene practices are the primary cause of contamination – either due to a lack of awareness by the workers or a lack of toilet and hand washing facilities. Pathogenic microorgansims can be found all over the body, but especially in and around the bottom, nose, mouth, and open sores. Hands can be contaminated when going to the toilet, blowing the nose or eating.

Practice 14. Workers have appropriate knowledge or are trained in personal hygiene practices and a record of training is kept.

Workers must be aware of the ways they can contaminate other workers and follow appropriate personal hygiene practices. They must complete training if they do not have sufficient knowledge and a record needs to be kept to show that workers have been trained. The training record must include the name of the person and the date of training. This information can be kept in a log book or on a record sheet.

Basic personal hygiene practices are:

- use correct methods for washing and drying hands after visiting the toilet, handling animals, smoking, eating, and handling waste food and rubbish,
- cover cuts and sores, and
- inform the supervisor if sick.

Signs of infectious disease, such as Hepatitis A, include diarrhoea, vomiting, coughing, fever, and jaundice. Workers with infectious diseases should not handle produce.

If gloves are used, either use disposable gloves and change them frequently or wash reusable gloves before each use.

Practice 15. *Written instructions on personal hygiene practices are provided to workers or displayed in prominent locations.*

To reinforce personal hygiene standards, written instructions must be provided to workers or displayed in clearly visible locations. The instructions must be simple and written in a language that the workers can understand. Photographs, diagrams and cartons can convey simple and clear messages.

Figure 7. Written instructions on personal hygiene practices are provided to workers or displayed in prominent locations.

Practice 16. *Toilets and hand washing facilities are readily available to workers and are maintained in a hygienic condition.*

Adequate toilets and hand washing facilities must be readily available for workers. Basic requirements for hand washing are clean water, soap and a method for drying hands such as disposable paper. Shared towels, rags or cloths should not be used for drying as they can become contaminated and may spread the microorganisms.

Toilets should be constructed and located so that there is no run-off of sewage into the production site or water source. The toilets and hand washing facilities should be cleaned and maintained regularly and replenished with soap and paper towels and a supply of clean water for hand washing.

Source: Mr. Baharudding Abdul Manap,Department of Agriculture, Malaysia

Figure 8. Toilets and hand washing facilities must be readily available to workers and are maintained in a hygienic condition.

Practice 17. Sewage is disposed of in a manner that minimises the risk of contamination of workers.

Contamination of workers from pathogenic microorganisms in sewage can occur directly through contact with worker hands and clothing during disposal or indirectly through contamination of drinking and washing water from disposal of sewage near or into waterways. A safe method and location for disposal of sewage must be used to minimise the risk of contamination of workers.

Practice 18. Where employers are required to provide medical and health cover, any serious health issue i s reported to the relevant health authority.

Practice 19. Where required, foreign workers complete mandatory medical checks and a record is kept.

In some countries, employers are required to provide medical and health care for workers. The employer must report any serious health issue to the relevant health authority. Some countries also require foreign workers to complete a mandatory medical check. Where this is required, a record of the medical must be kept by the employer.

Practice 20. Measures are taken to minimise the presence of animals and pests with infectious disease in production sites and around handling, packing and storage areas.

Animals and pests such as rodents can be a source of infectious diseases and cause illness to workers. The presence of pests in and around areas where produce is handled, packed and stored needs to be minimised. The measures used can be physical barriers or chemical treatments. Examples of control measures are:

- Use baits and traps to control rodents.
- Use barriers and other deterrents to prevent birds from roosting above work areas and where packing containers and materials are stored.
- Regularly dispose of waste from areas where produce is packed, handled and stored.
- Store containers and materials off the ground or floor and keep them dry, ventilated and covered.

3.3 Worker welfare

The welfare of workers is important for both the well being of workers and the productivity of the farm or packing shed. Workers should not be exploited due to age, gender, race and any other reason.

Practice 21. *Where provided by an employer, living quarters are suitable for human habitation and contain basic services and facilities.*

Where living quarters are provided by an employer, they must be suitable for human habitation. Basic services and facilities provided should include adequate sleeping quarters that are not overcrowded and hygienic kitchen facilities, toilets and hand washing facilities.

Practice 22. *The minimum working age shall comply with country regulations. Where regulations are absent, workers shall be older than 15 years of age.*

In some countries, the minimum working age is control by government regulation. Employers should check whether a regulation governing worker age exist in their country. Where there is no regulation, workers must be older than 15 years of age.

3.4 Training

Practice 23. *New workers are informed about the risks associated with health and safety when starting at the worksite.*

New workers should be informed about risks to their health and safety and measures they need to follow to prevent or minimise the risk of the hazards occurring. Providing safety induction information in the form of a checklist and asking the worker to complete and return with the date and their signature to the employer will help reinforce the good agricultural practices. It also demonstrates that the employer has shown diligence in alerting workers to potential risks to their health and safety.

The safety induction checklist should include information about:

- Work clothes
- Having enough food and water
- Personal hygiene
- Personal protective equipment
- Reducing fatigue
- Working outdoors
- Working in packing sheds
- Emergency preparedness

People must have appropriate knowledge or be trained according to their area of responsibility to ensure they have the skills to perform their duties. The training should include instructions on measures they need to follow to prevent or minimise the risk of the hazards to their health and safety. The training may take the form of on-the-job training or formal training. Refresher training and signs in the work area help to reinforce instructions for workers.

Particular attention should be paid to the following areas:

- operating vehicles, equipment and tools,
- accident and emergency procedures,
- safe use of chemicals,
- personal hygiene

Figure 9. Posters and signs in the work area help to reinforce instructions for workers.

A record of training must be kept to show that employers and workers have been trained. This information can be recorded in a log book or on a record form. An example of a job responsibility and training record form is contained in Section 5. Examples of documents and records.

3.5 Documents and records

Documents and records provide evidence that good agricultural practices have been implemented to protect worker health, safety and welfare. They also help to review whether practices are being done correctly and are working effectively. Examples of documents and records are contained in Section 5.
Records related to worker health, safety and welfare must be kept for a minimum of two years or longer if required by government legislation or customers. Some examples of records that must be kept are chemical purchase and application records and training records.
To avoid the use of obsolete documents, any out of date documents must be discarded and only current versions used. Placing the date of preparation in the footer of the document will identify the latest version.

3.6 Review of practices

A review of practices is necessary to confirm that practices are being carried out as required and records are accurate and contain the required information. This self-assessment identifies the practices that are not being done correctly and actions needed to investigate and rectify the problem.
All practices must be reviewed at least once each year. The practices do not have to be reviewed at the same time. It is best to review the practices at the time when they are being undertaken. For example at harvest time, review the practices that are associated with harvesting and preparation of the product for sale. A review of the application of pesticides during production would be undertaken before produce is harvested.

Despite best intentions, problems arise from time to time. The review may identify a practice that is not being done correctly. The problem must be investigated and actions taken to correct the problem and prevent it happening again.

A record must be kept of the practices reviewed and corrective actions taken. A self-assessment checklist is a useful tool. It provides a simple, systematic outline for reviewing practices and when completed it provides a record of the review and corrective actions taken. An example of a self-assessment checklist and corrective action

is contained in Section 4. Self-assessment checklist.

Complaints related to worker health, safety and welfare must be investigated and actions taken to resolve the complaint. The complaint may be from a worker or a person or organisation outside of the farm or packing shed.

A record of the complaint and actions taken must be kept. This information can be recorded in a log book or on a record form.

4. Self-assessment checklist – good agricultural practices

This self-assessment checklist enables the level of compliance with the good agricultural practices contained in the food safety module of ASEAN GAP to be checked. The relevance of the practices will depend on the location of the farm or packing business, type of produce, and the systems used for production, harvesting, handling, packing, storage and transport. Each practice is assessed and a tick is placed in the relevant column. If attention is needed, the actions required are recorded in the column titled, “Actions required/ taken”. When the actions have been taken, the assessor checks that the actions are satisfactory and writes a comment in the “Actions required/ taken” column with the date and a signature.

Chemicals	Yes	Needs attention	Not relevant	Actions required/ taken
1. Chemicals are handled and applied by authorised workers with appropriate knowledge and skills.				
2. Chemicals are stored in a well lit, sound and secure structure, with only authorised people allowed access. The structure is located and con structed to minimise the risk of contaminating workers and equipped with emergency facilities in the event of a chemical spill.				
3. Chemicals are stored in the original container with a legible label and according to label directions or instructions from a competent authority. If a chemical is transferred to another container, the new container is clearly marked with the brand name, rate of use and withholding period.				
4. Where there is a significant risk of chemical contamination of workers, Material Safety Data Sheets or safety instructions from chemical labels are readily available.				
5. Facilities and first aid measures are readily available to treat workers contaminated with chemicals.				
6. Accident and emergency instructions are documented and displayed in a prominent location within or close to the chemical storage area.				
7. Workers handling and applying chemicals and entering newly sprayed sites are equipped with suitable protective clothing and equipment for the chemical used.				
8. Protected clothing is cleaned and stored separately from crop protection products. 9. Access to sites where chemicals are being applied or newly applied is restricted for an appropriate period relevant to the chemical used. 10. If required, chemical application in areas of public access is marked with warning signs.				

Worker conditions – general	Yes	Needs attention	Not relevant	Actions required/ taken
11. Working conditions are suitable for workers and protective clothing is supplied where conditions are hazardous to workers.				
12. All farm vehicles, equipment and tools, including electrical and mechanical devices, are adequately guarded and maintained and inspected on a regular basis for potential hazards to users.				
13. Safe manual handling practices are followed to minimise the risk of injury from lifting heavy objects and excessive twisting and reaching movements.				
Worker conditions – personal hygiene				
14. Workers have appropriate knowledge or are trained in personal hygiene practices and a record of training is kept.				
15. Written instructions on personal hygiene practices are provided to workers or displayed in prominent locations.				
16. Toilets and hand washing facilities are readily available to workers and are maintained in a hygienic condition.				
17. Sewage is disposed of in a manner that minimises the risk of contamination of workers.				
18. Where employers are required to provide medical and health cover, any serious health issue is reported to the relevant health authority.				
19. Where required, foreign workers complete mandatory medical checks and a record is kept.				
20. Measures are taken to minimise the presence of animals and pests with infectious disease in production sites and around handling, packing and storage areas.				
Worker welfare				
21. Where provided by an employer, living quarters are suitable for human habitation and contain basic services and facilities.				
22. The minimum working age shall comply with country regulations. Where regulations are absent, workers shall be older than 15 years of age.				
Training				
23. New workers are informed about the risks associated with health and safety when starting at the worksite.				

Training continued	Yes	Needs attention	Not relevant	Actions required/ taken
24. Workers have appropriate knowledge or are trained to a level appropriate to their area of responsibility in the following areas: • operating vehicles, equipment and tools, • accident and emergency procedures, • safe use of chemicals, • personal hygiene.				
Documents and records				
25. Records of good agricultural practices are kept for a minimum period of at least two years or for a longer period if required by government legislation or customers.				
26. Out of date documents are discarded and only current versions are used.				
Review of practices				
27. All practices are reviewed at least once each year to ensure that they are done correctly and actions are taken to correct any deficiencies identified.				
28. A record is kept to show that all practices have been reviewed and any corrective actions taken are documented.				
29. Actions are taken to resolve complaints related to worker health, safety and welfare, and a record is kept of the complaint and actions taken.				

Name of assessor:

Signature:

Date:

5. Examples of documents and record

The section contains examples of documents and record forms that are required to implement various practices in the worker health, welfare and safety module. The documents and record forms are examples only and other methods and formats can be used. ASEAN GAP specifies the information that has to be documented and the records to keep, but does not specify how to document information and keep records.

The example documents and record forms contained in this section are:

- Chemical inventory
- Spray record
- Postharvest chemical record
- Chemical authorisation form
- Personal hygiene instructions
- Job responsibility and training record
- Corrective action report

Chemical Inventory

Business/Grower Name:

Date purchased	Name of product	Quantity	Place of purchase	Batch no. (where available)	Manufacture /expiry date	Method and date of disposal

Stocktake	Date: Name:	Date: Name:

Spray Record

Business/Grower Name: **Crop/ Variety:** **Year:**

Date/ Time	Block/ Row	Crop stage/ target	Product	Dilution rate	Application rate	Equipment / method used	Date safe to harvest or WHP	Comments/ weather conditions	Operator

Postharvest Chemical Record

Business/Grower Name:

Chemical	Tank Size	Tank Mixing Rate		Application Method
		Fresh	Top-up	

Date	Time	Chemical	Fresh (F) or Top-up (T)	Comments	Signature

Chemical Authorisation

This chemical storage shed is to be kept locked at all times.

……..…….. is responsible for the use and storage of all chemicals used on this property, and the training and supervision of all staff who are required to use chemicals.

The following staff have authorisation to use chemicals:

Authorised Person	Manager's Signature	Date

Personal Hygiene Instructions

All staff:

Wash your hands with soap and water and dry your hands on a single use disposable paper towel before handling fruit

After Visiting the toilet
Handling animals
Smoking
Handling waste food and rubbish

Cover cuts and sores with clean, waterproof dressings.

Inform the manager if you are suffering from gastric illness, hepatitis and other infectious diseases.

Do not smoke, eat food, or spit in produce handling areas.

Signature of employee: **Date:**

Job Responsibility and Training Record

Business/Grower Name:

Name	Chemical application	Fertilising	Irrigation	Harvesting	Grading and packing	Cleaning	Personal hygiene	Repairs and maintain	Self assessment checklist

C = attended farm chemical user course
✓ = performs job and training completed

✓✓ = performs job, training completed and has responsibility for area

Corrective Action Report

Business/Grower Name:

Date	Problem and cause	Action taken to fix problem	Signature/ date when problem fixed

Appendix 1. – Glossary of terms

Abbreviations

AADCP	ASEAN-Australia Development Cooperation Program
	ASEAN Association of Southeast Asian Nations
AusAID	Australian Agency for International Development
GAP	Good Agricultural Practice
MRL	Maximum Residue Limit
QA	Quality Assurance
QASAFV	Quality Assurance Systems for ASEAN Fruit and Vegetables

Terms

Competent authority	An organisation or company that is a recognised authority to develop or monitor standards, rules of operation, codes of practice, regulations, and policies. Examples include government departments, international committees such as CODEX, industry organisations, QA/GAP system owners, and auditing companies.
Contamination	The introduction or transfer of a chemical or biological hazard to workers or to water, soil, produce, equipment, materials and clothing that contacts workers.
Corrective action	Action taken to remove or minimise or prevent re-occurrence of a hazard.
Customer	A business or person who buys or receives produce. For example, a packer, marketing group, distributor, wholesaler, exporter, processor, retailer, or consumer.
Domestic animals	Animals that are raised as family pets or as a source of food for the family– for example dogs, cats, cows, chickens, ducks, birds, sheep, monkeys, mice, rabbits.
Farm animals	Animals that are raised for commercial purposes – for example, cows, sheep, chickens, ducks.
Hazard	Something that can happen to affect worker health, safety and welfare.
Good agricultural practice	Practices used to prevent or reduce the risk of hazards occurring during production, harvesting, postharvest handling of produce.
Maximum level (ML)	The maximum amount of a heavy metal in fruit and vegetables for sale for human consumption, which is permitted by a competent authority.
Maximum Residue Limit (MRL)	The maximum amount of a chemical in fruit and vegetables for sale for human consumption, which is permitted by a competent authority.
Pest	An unwanted animal or plant that affects the production, quality and safety of fruit and vegetables – for example, insects, diseases, weeds, rodents, birds.
Pesticide	Products used to control pests – for example, insecticides, fungicides, herbicides, fumigants. Pesticides can be manufactured from chemical or biological sources.
Produce	Fruit and vegetables (including herbs)
Property	The whole area of a farm or business. It includes all houses, buildings, production areas, roads, fauna and flora, and watercourses within the surveyed boundaries of the property.
Risk	The chance of something happening that will impact upon a hazard. It is measured in terms of likelihood and consequences.
Sanitise	Reducing the level of microorganisms through using chemicals, heat and other methods.
Workers	All people working on a farm or in a business, including family members and contractors.

Appendix 2. – References and additional information

Global organisations

- World Trade Organisation of the United Nations - WTO www.wto.org
- World Health Organisation of the United Nations - WHO www.who.int
- Food and Agriculture Organization of the United Nations www.fao.org
- Codex Alimentarius Commission (Codex) www.codexalimentarius.net

Training programs

- Managing farm safety – Farmsafe Australia Inc. – www.farmsafe.org.au

Publications

- Managing farm health and safety – Farmsafe Australia Inc. – www.farmsafe.org.au
- Farm machinery – Guidance notes no. 5 – Australian Centre for Agricultural Health and Safety – www.farmsafe.org.au
- Ergonomics and manual handling on farms – Guidance notes no. 6 – Australian Centre for Agricultural Health and Safety – www.farmsafe.org.au
- Farm chemicals – Guidance notes no. 13 – Australian Centre for Agricultural Health and Safety – www.farmsafe.org.au
- Health and safety in the packing shed, a practical guide – Farmsafe Australia Inc. – www.farmsafe.org.au
- Managing health and safety in the horticulture industries – Hazard checklist – Farmsafe Australia Inc. – www.farmsafe.org.au
- Safety induction information for seasonal workers in horticulture – Farmsafe Australia Inc. – www.farmsafe.org.au
- Safety induction information for contractors in horticulture – Farmsafe Australia Inc. – www.farmsafe.org.au
- Farm injury register form – Farmsafe Australia Inc. – www.farmsafe.org.au

On-farm quality and food safety programs

Program	
	Website
EUREPGAP	www.eurep.org
ChileGAP	www.chilegap.co
Freshcare On-Farm Food Safety Program (Australia)	www.freshcare.com.au
SQF 1000 and 2000	www.sqfi.com
Thailand Q system, Malaysian SALM system, Singapore GAP-VF system,	www.aphnet.org
Indonesian INDON GAP system – QASAFV project website	