

KS1758

HORTICULTURE CODE OF PRACTICE

**ILLUSTRATION  
MANUAL**







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# ILLUSTRATION MANUAL

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## MESSAGE FROM DIRECTOR, AFA-HCD

It is with great pleasure and a sense of responsibility that I introduce this illustration manual, a comprehensive guide to the implementation of KS 1758: Horticulture Industry Code of Practice; a standard embedded in horticulture regulations 2020. The Code of Practice focuses on production of quality and safe produce while safeguarding the environment and welfare of employees. This manual aims to inculcate knowledge and awareness of good practices that would enable realization of the tenets of KS 1758 being:

- . Building and maintaining consumer confidence in quality and safety of horticulture produce
- . Efficient use of natural resources
- . Minimizing the impact on environment and proper use of inputs where required
- . Demonstration of compliance to regulatory and statutory requirements

The KS 1758 standard is not an arbitrary benchmark, but a pillar upon which operators build trust and reliability of their produce. This manual serves as a road map, providing clear direction and insights into the intricacies of KS 1758. It is a testament of shared dedication to excellence and continual improvement by AFA-HCD, associated agencies, partners, Horticulture Industry Associations and operators.

As a regulator, our foresight is to ensure the well-being of the industry and its participants. The illustrations are guidelines designed to elevate our collective performance through implementation of value driven best practice, safety and satisfaction required by consumers of the horticultural produce. The manual therefore is a tool for empowerment, enabling operators to navigate the landscape of compliance with ease, clarity and confidence.

Successful implementation of KS 1758 rests on the collaboration of each stakeholder, but more specifically with purposeful and meaningful implementation of the standard by the farmer who is at the focal point of production. It is a journey of not only recognizing that adherence to this code of practice is a regulatory requirement but a commitment to the principles that underpin a thriving and sustainable Horticulture industry.

I extend my gratitude to the Executive Committee and the Standard Implementation Committee as well as support from CABI PlantwisePlus Programme for the development of this manual. Their dedication and unwavering support in enabling proper implementation of KS 1758 with ease at all levels of production is truly appreciated.

Ms. Christine Chesaro



Director, AFA-HCD



## MESSAGE FROM THE CHAIRMAN, KS 1758 EXECUTIVE COMMITTEE

Welcome to a journey that transcends the boundaries of Good Agricultural Practice(GAP), a journey that celebrates the artistry of agriculture. This manual is not just a collection of illustrations; it is a canvas that paints the vibrant hues of knowledge and awareness of KS 1758: Horticulture Industry Code of Practice. As you leaf through these pages, you'll find more than just diagrams and sketches, you'll discover a visual narrative designed to cultivate a deeper understanding of the intricacies of Good Agricultural Practice as enshrined in KS 1758 .

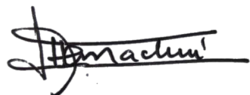
Farming is not just a livelihood; it's a way of life that connects us to the very essence of our existence. The manual aims to be your companion in this journey, providing insights and guidance that go beyond words. Each illustration tells a story - a story of good practice; a story of options to navigate the challenges faced while in production; the benefits that arise in fulfilling defined practice and the joy that comes with careful selection of seed, proper nurturing of crops, appropriate pest management, to sustainable practices. Every image encapsulates a wealth of knowledge that empowers you to make informed decisions for a bountiful harvest.

Our hope is that this manual serves as a beacon of awareness, guiding through the ever-evolving landscape of modern agriculture. Let these illustrations be a source of inspiration, sparking curiosity that leads to continuous learning and adaptation. As you engage with these visuals, remember that you are not alone in this journey - The Standards Implementation Committee anchored under AFA-HCD are available to explain or provide further guidance on proper implementation of KS 1758.

May this manual be a source of enlightenment, fostering a deeper connection between you and the land you cultivate in application of Good Agricultural Practice. Here's to sustainable farming, a future where the art of farming thrives effortlessly in providing safe food, healthy crop, compliance and protection of the environment.

Happy Farming,

Mr. Hosea Machuki



Chair, KS 1758 Executive Committee



## List of Contributors

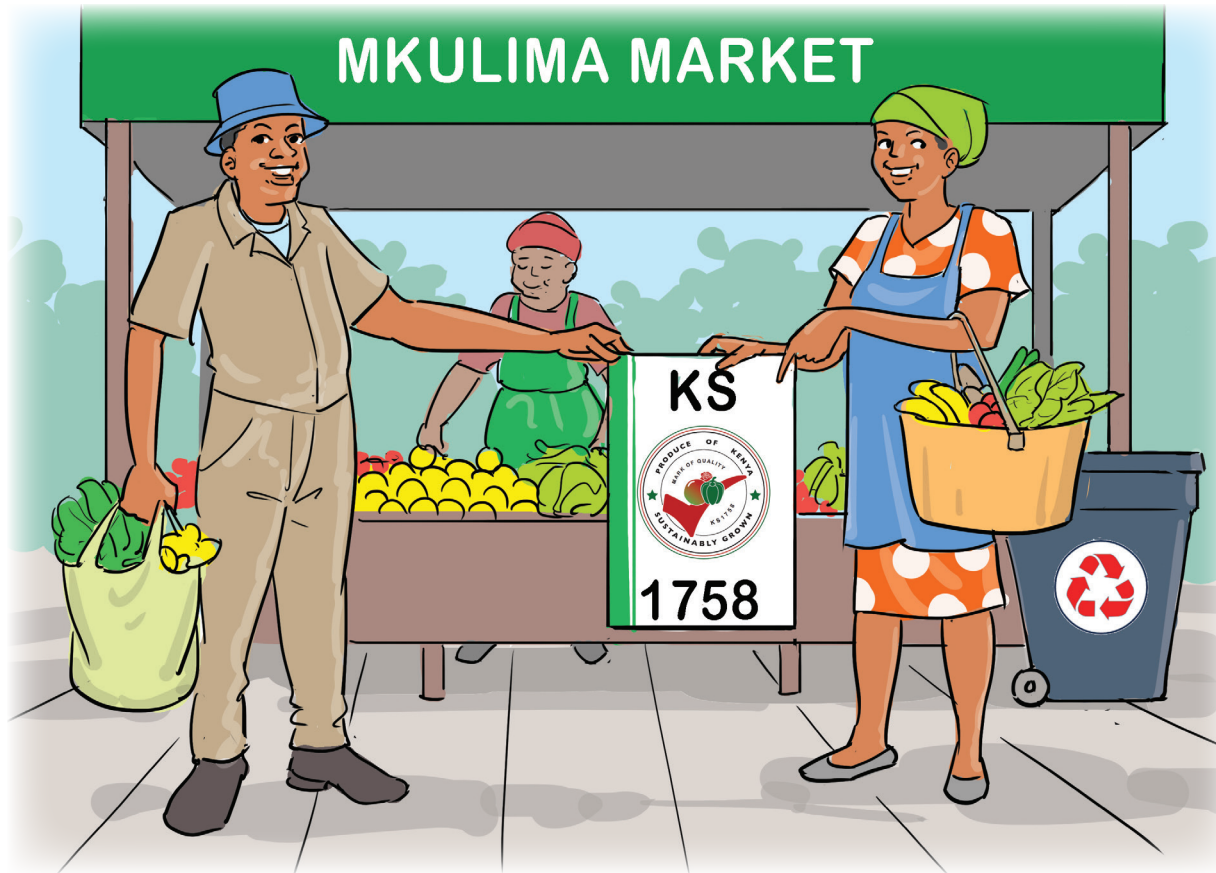
The following organisation were represented in the development of this Manual:

1. Agriculture and Food Authority – Horticultural Crops Directorate (AFA-HCD)
2. Kenya Plant Health Inspectorate Service (KEPHIS)
3. Ministry of Agriculture and Livestock Development (MOALD): State Department for Agriculture
4. Kenya Accreditation Service (KENAS)
5. Fresh Produce Consortium of Kenya (FPC Kenya)
6. Fresh Produce Exporters Association of Kenya (FPEAK)
7. Kenya Flower Council (KFC)
8. Jomo Kenyatta University of Agriculture and Technology (JKUAT)
9. Kenya Bureau of Standards (KEBS)
10. Society of Crop Agribusiness Advisors of Kenya (SOCAA)
11. The Retail Trade Association of Kenya (RETRAK)
12. Pest Control Products Board (PCPB)
13. CABI, PlantwisePlus Programme





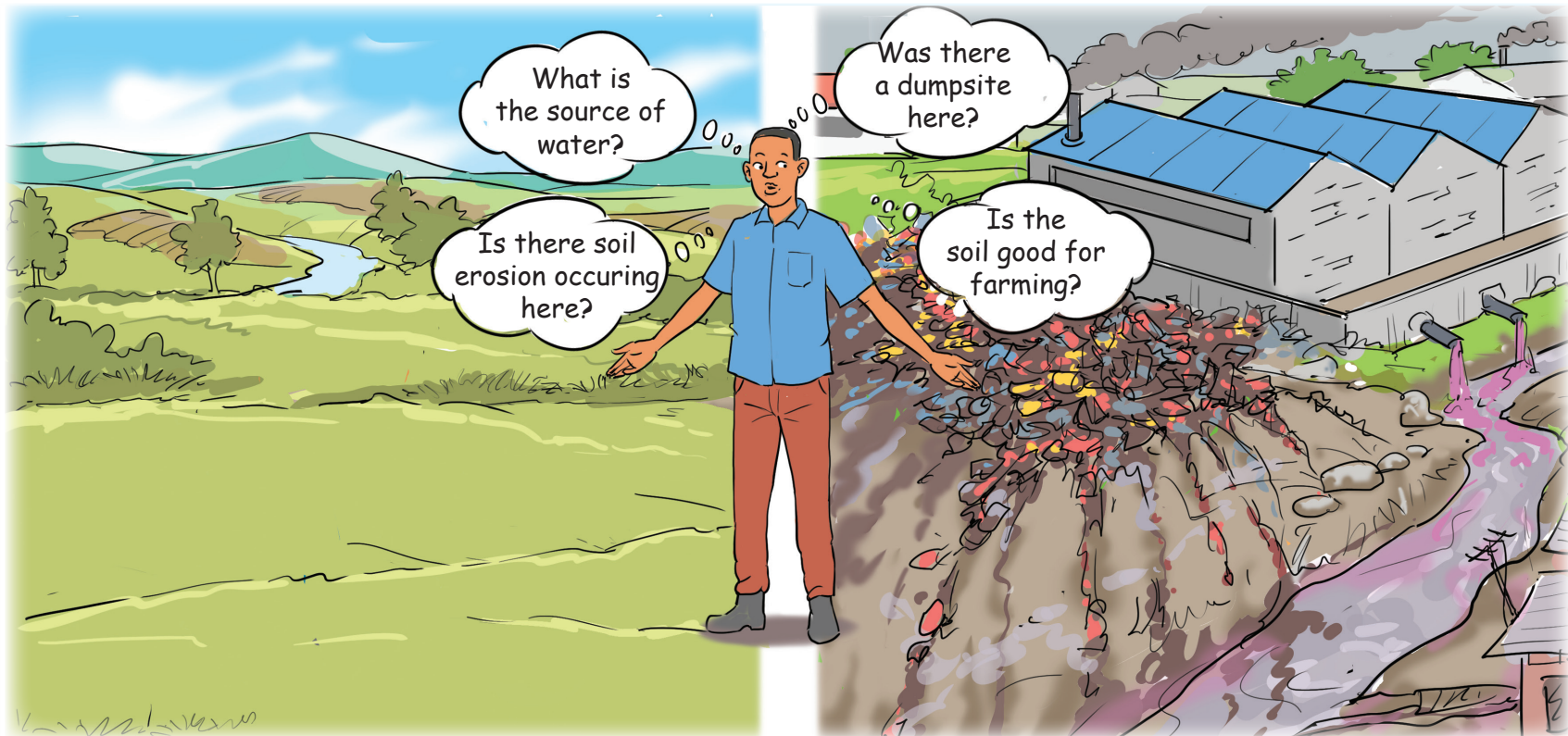
## BENEFITS OF KS 1758: Horticulture code of practice



- More money to the farmer by accessing lucrative markets.
- Minimises wastage of inputs e.g fertilizers, water, and pesticides hence more money to the farmer.
- Conserves environment nature and wildlife.
- Ensures farmer and worker safety hence no wastage of money on hospital bills.
- Ensures production of safe food.

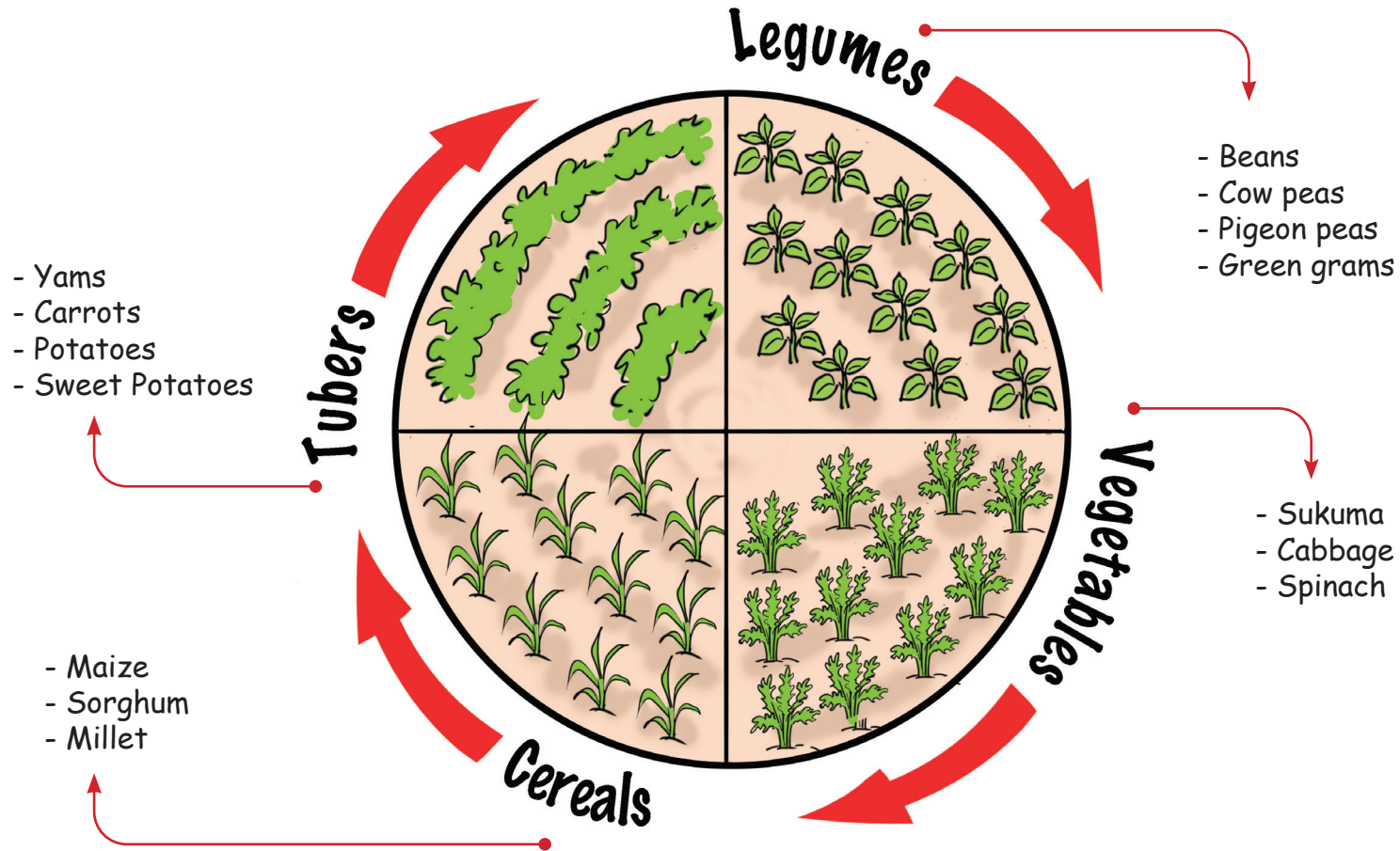


## Establish the history of the planting site



- Undertake risk assessment to establish the history of the site.
- Select a site that does not have a history of faecal, industrial, heavy metal contamination or is neighboring a quarry to avoid produce contamination.

## Develop a Crop Rotation Plan



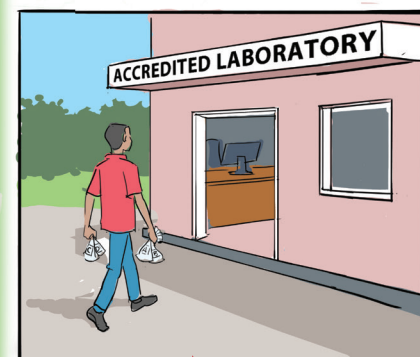
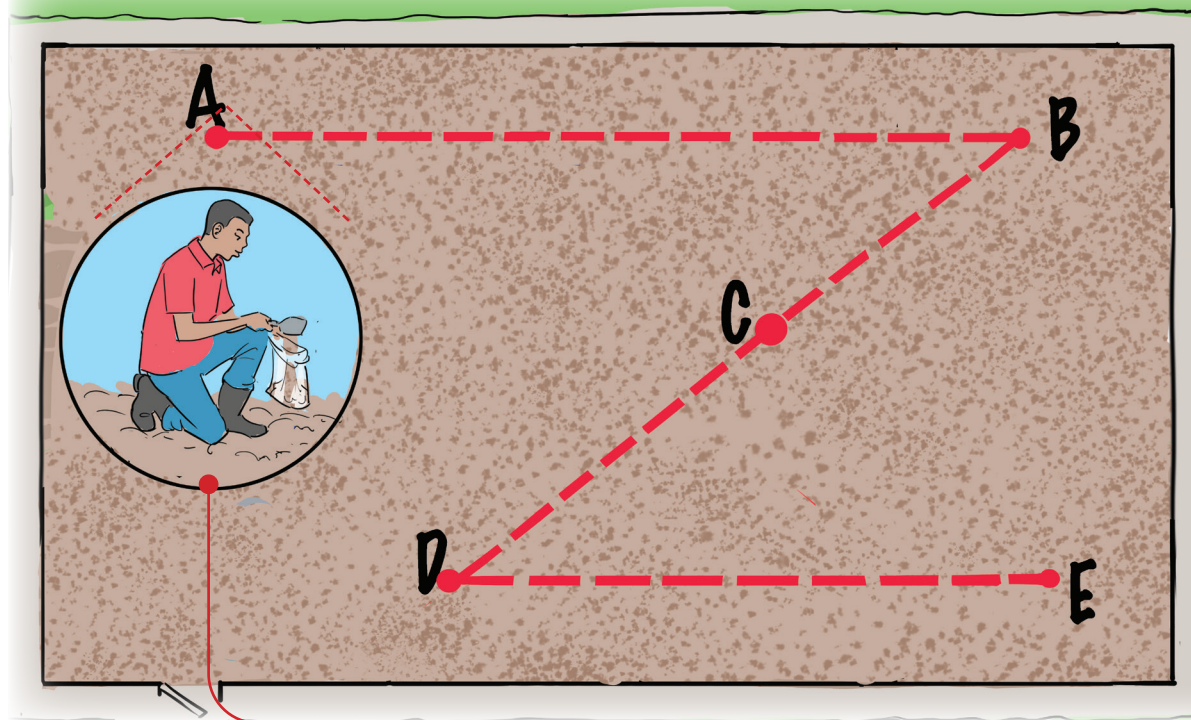
- Use crop rotation every season to maintain soil fertility and control of soil borne pests and diseases.





## Conduct soil/planting media testing

A,B,C,D and E are sampling points



- Soil/planting media testing determines;
  - the nutrient content, chemical, microbial and heavy metal levels.
  - the amount and type of fertilizer to use during the season.
- Use uncontaminated planting media.
- Treat planting media where necessary and justify the method used.



## Buy planting materials from certified sources



### Planting material from certified sources;

- Reduces money spent on pest control.
- Ensures traceability.
- Increase yields.
- Provides an assurance of the quality of seed.
- Are tolerant to harsh climatic conditions.

— Always seek advice on the best planting material from competent person.



## Always seek advice from competent persons on fertilizer use

What is the best fertilizer for planting Bananas?

Based on your test results use manure and fertilizer rich in Potassium.

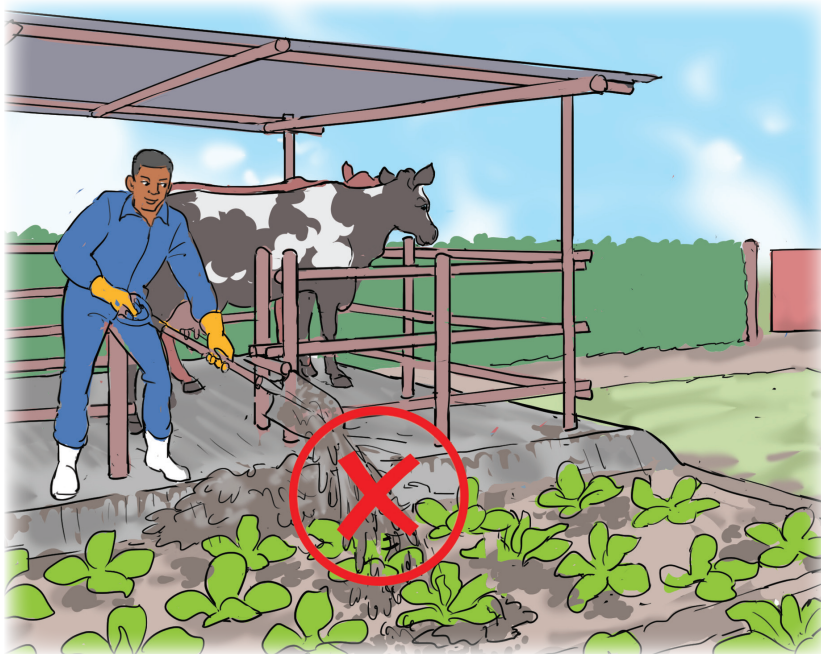


What is the fertilizer suitable for top dressing my crop?

As per the crop requirement you need fertilizer rich in Nitrogen.



## Use well composted manure



- **DO NOT** use raw manure; this can lead to microbial and chemical contamination of produce.



- Before use or application test manure for heavy metals, chemical and microbial contaminants.
- Prepare compost away from waterways.



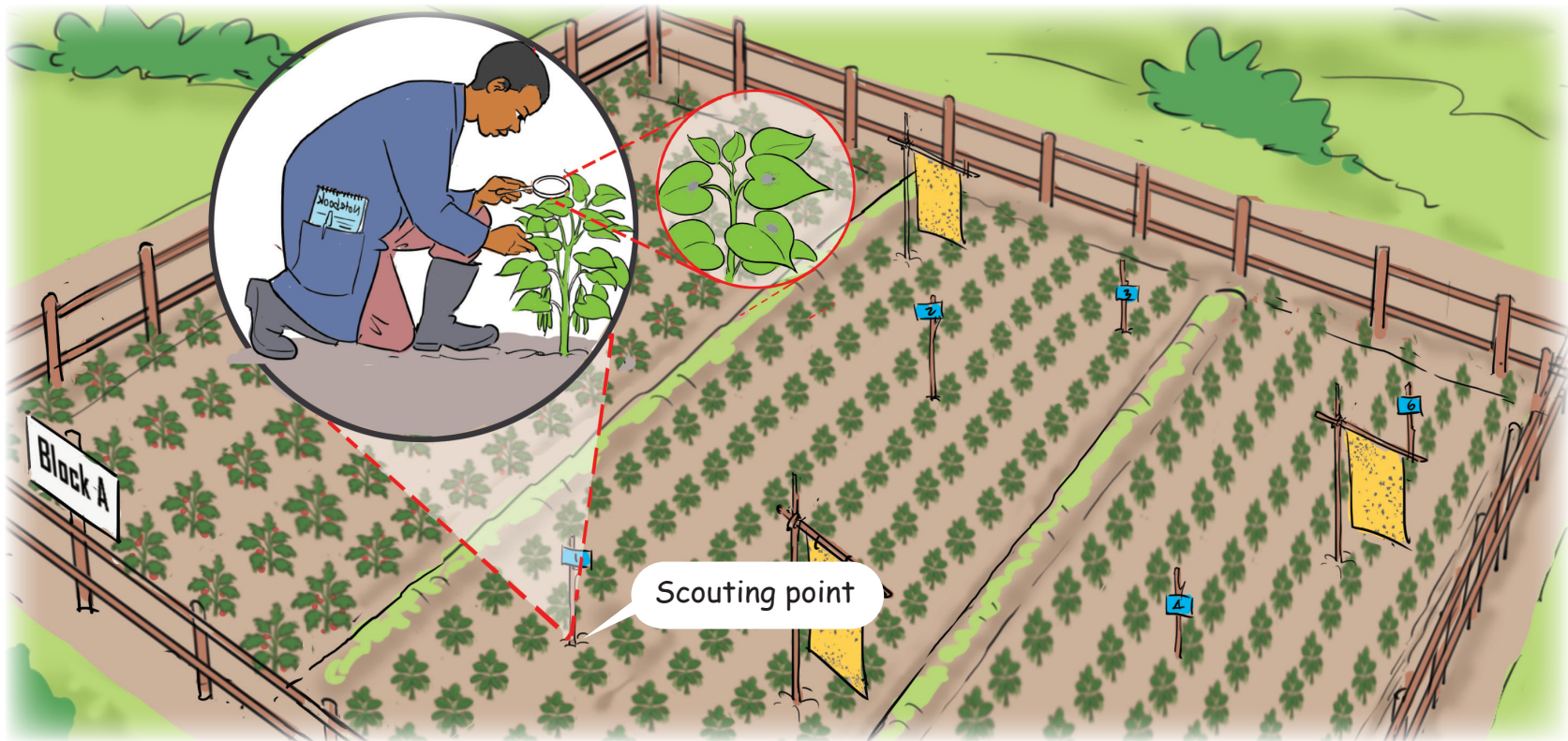


## Irrigate your plants with clean water



- **DO NOT** irrigate with sewerage water.
- Test irrigation water for chemicals, heavy metals, and microbial contaminants at least once every 12 months and discuss the results with competent personnel. This will ensure use of safe water.

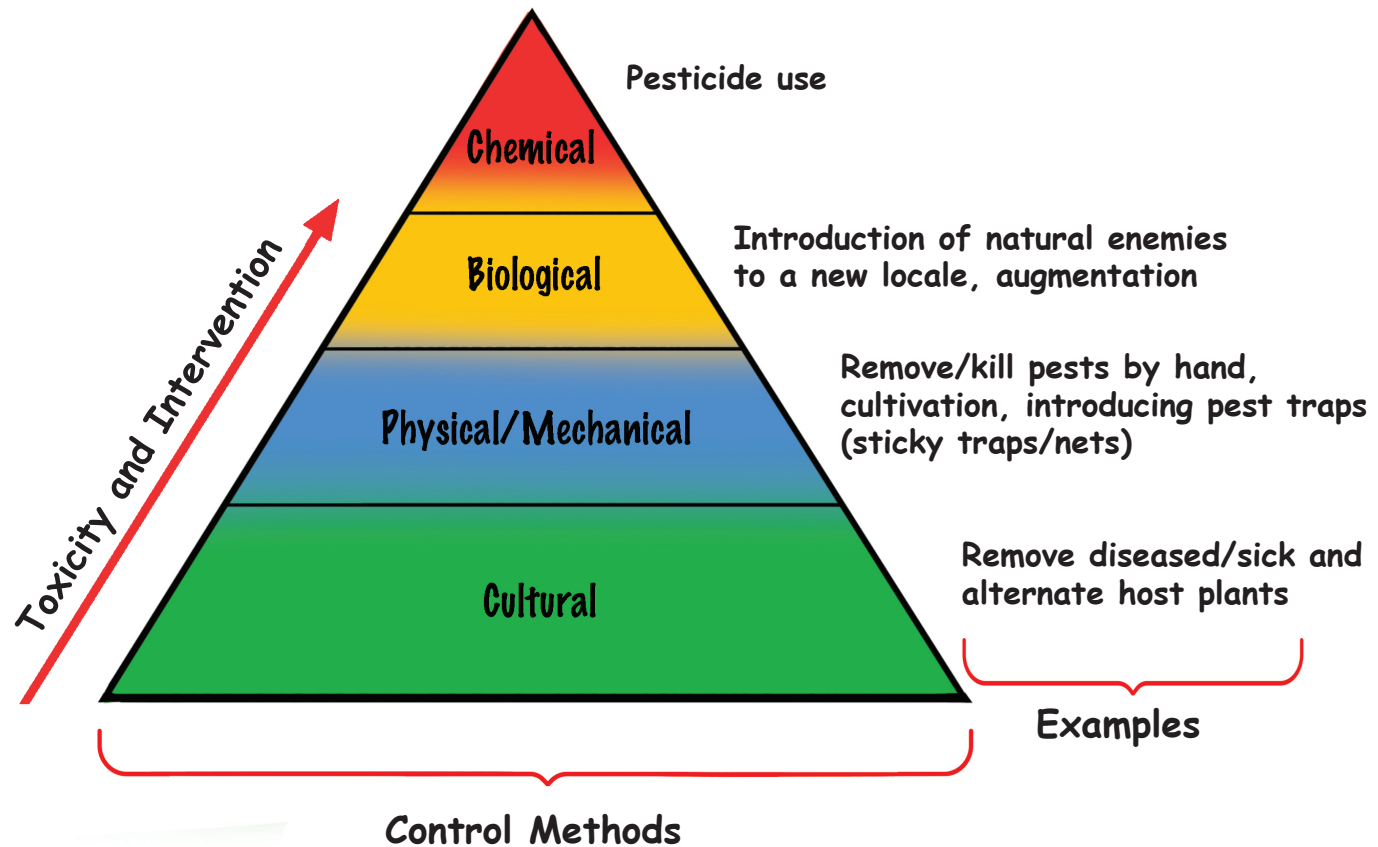
## Develop a crop monitoring plan



- Develop a crop protection plan to help determine and utilize available methods of control.
- Scout throughout the crop growing period to know: the extent of damage, the available beneficial insects, and the method of pest control to apply.



## Use Integrated Pest Management (IPM) Strategies



- IPM uses a combination of various pest and disease management approaches.
- IPM is a recommended approach for sustainable management.



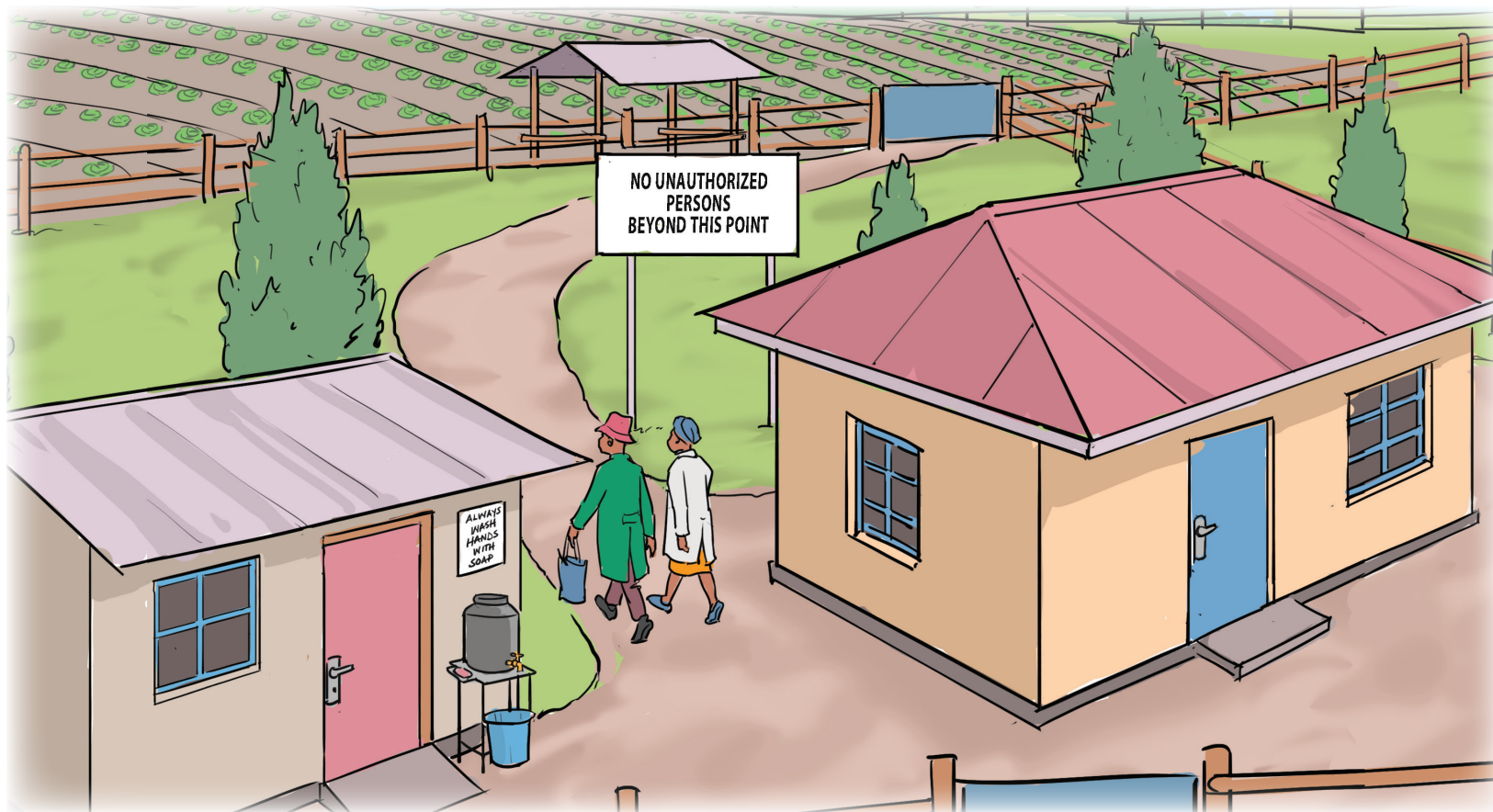
## Implement sanitation procedures to prevent introduction of pests and diseases



- Restrict entry to production areas.
- Use designated PPEs, tools for specific production areas.
- Where necessary, use foot baths at production site entries and double door entries in case of green houses.
- Clean tools/equipment before and after use.



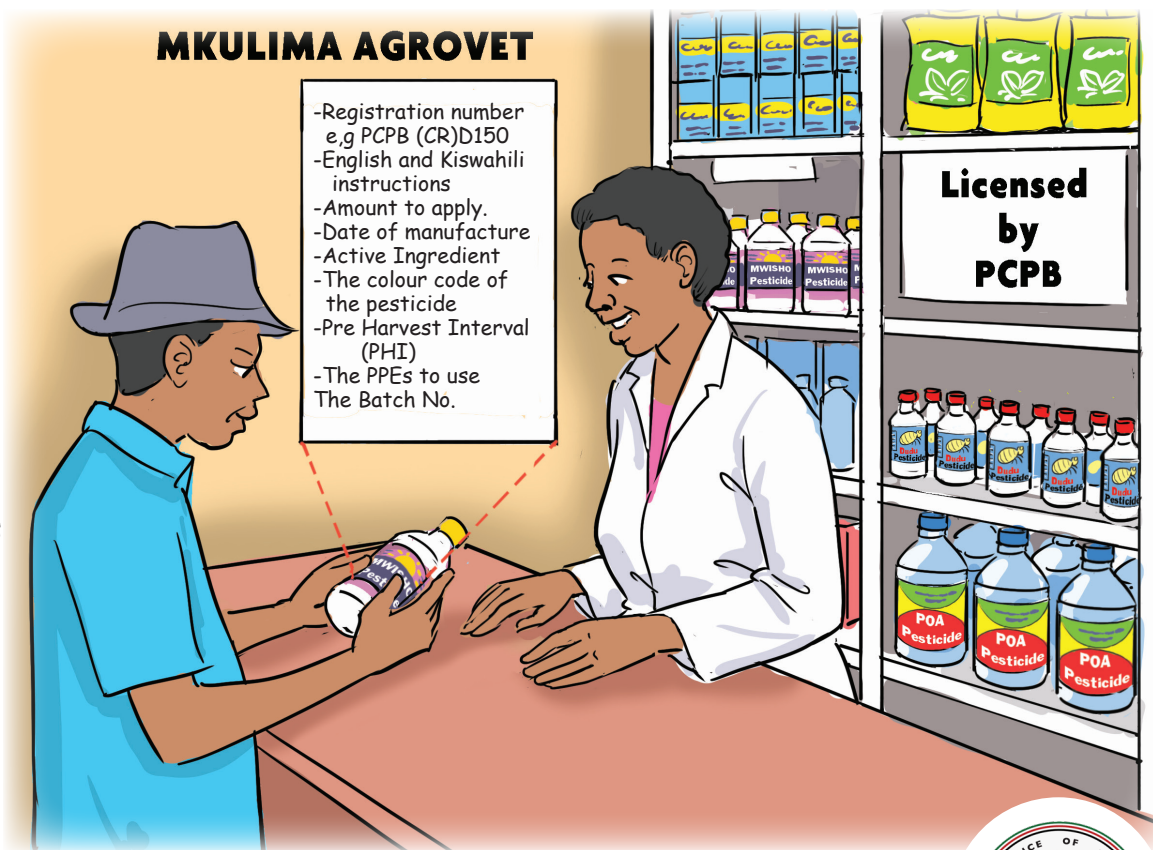
## Managing visitors on farm



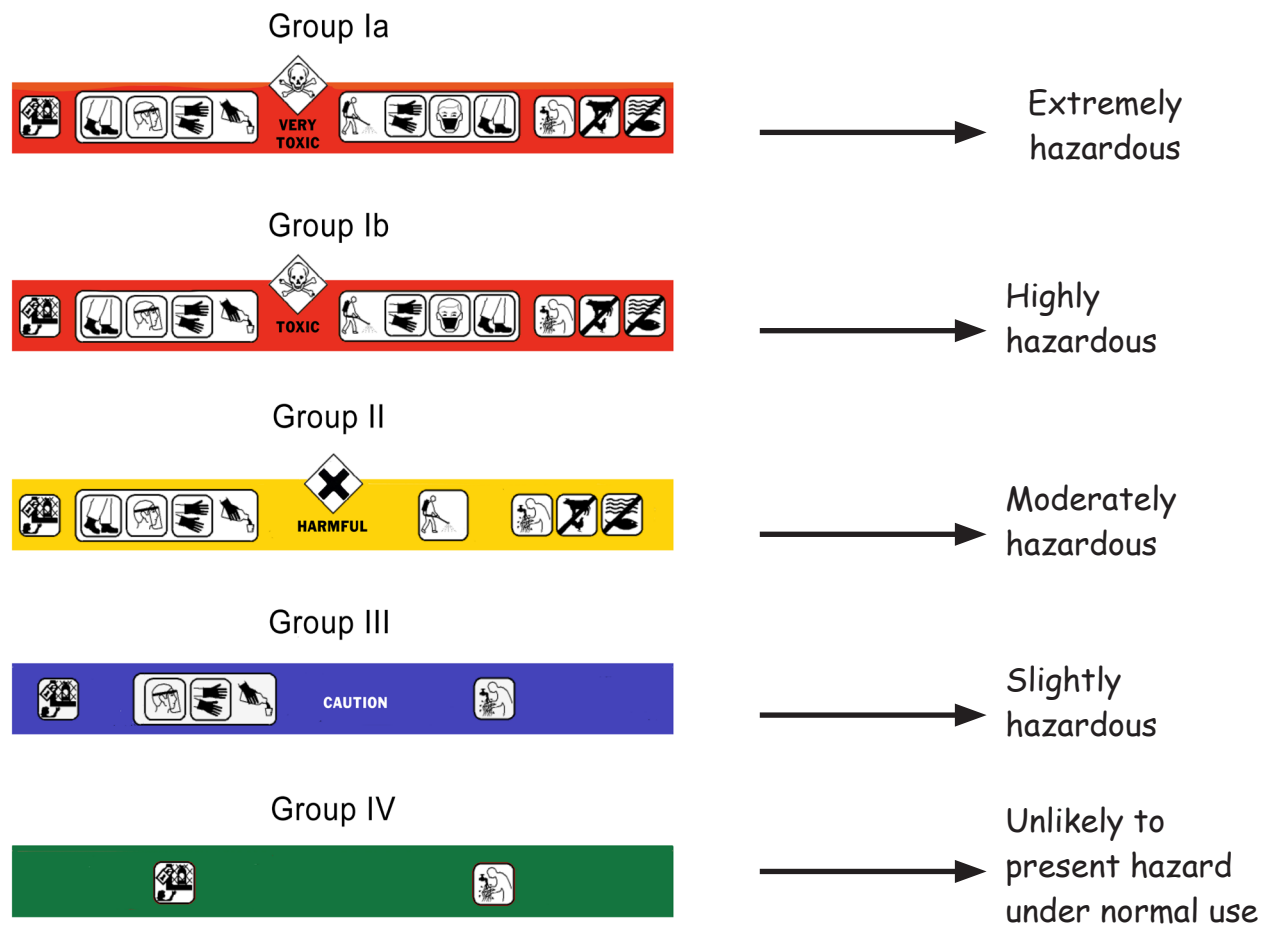
- Visitors should observe hygiene requirements when on the farm and must always be accompanied by a farm representative.

## Buy pesticide from a licensed agrovet and read the label

- Read the safety instructions.
- Purchase products with clear label.
- The pesticide container should be sealed.
- Keep purchase receipts.
- Refer to the Pest Control Products Board website: [www.pcpb.go.ke](http://www.pcpb.go.ke) for registered products.
- Ensure that the pesticide is for the crop and pest you intend to spray.



## Check colour classification codes of plant protection products

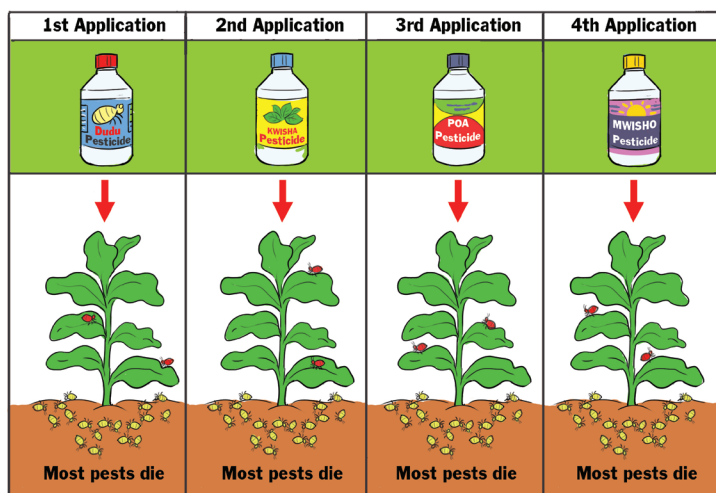
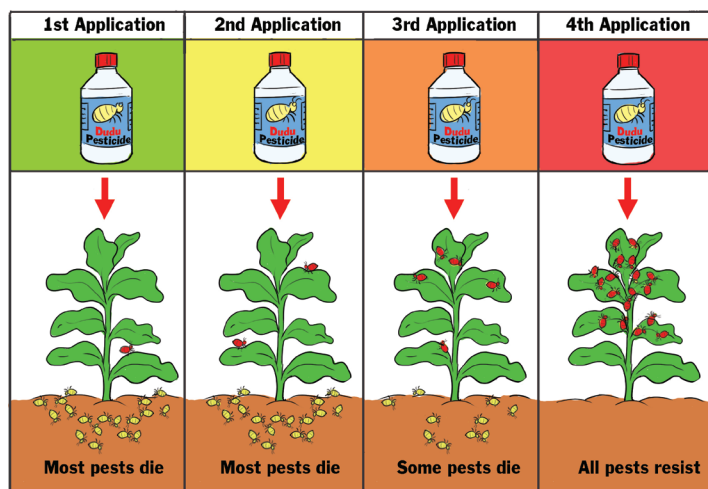


- Use less hazardous plant protection products where possible.

Source: WHO



## Managing pest resistance



- Do not use one type of pesticide (active ingredient) continuously over long period of time.
- Use of same pesticide continuously leads to;
  - 1) Pest resistance hence increase in number of pests.
  - 2) Loss of money to the farmer due to increased pesticide use.



## Transportation of plant protection products



- Do not transport pesticides with food, animal feed or general consumer goods.
- Where vehicles are used to transport pesticides, they should be equipped with appropriate Personal Protective Equipments (PPEs), fire extinguisher, sand, shovel to deal with emergencies.

## Safe storage of plant protection and nutrition products



- The pesticide store should be:
  - Secured/locked and well ventilated.
  - Inaccessible to unauthorised persons.
  - Separate from fertilizer, detergents, or disinfectants/ food.
- Follow label instructions on the safe storage of pesticides.
- The pesticide should be stored in the original container as per the manufacturer.
- Observe first in first out use of pesticide.
- Keep a record of all the pesticide in use.



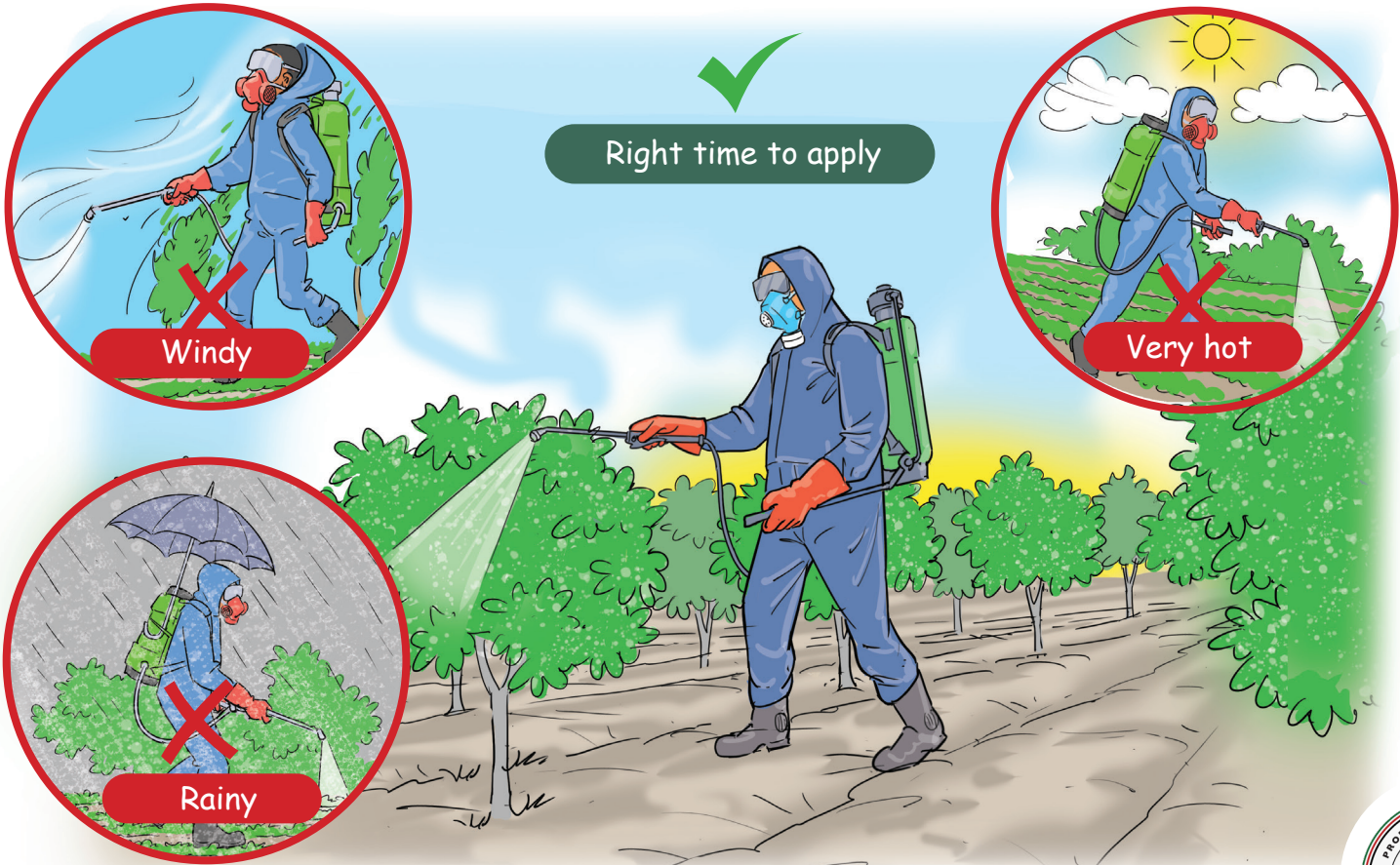
## Dispense pesticides and hazardous chemicals safely



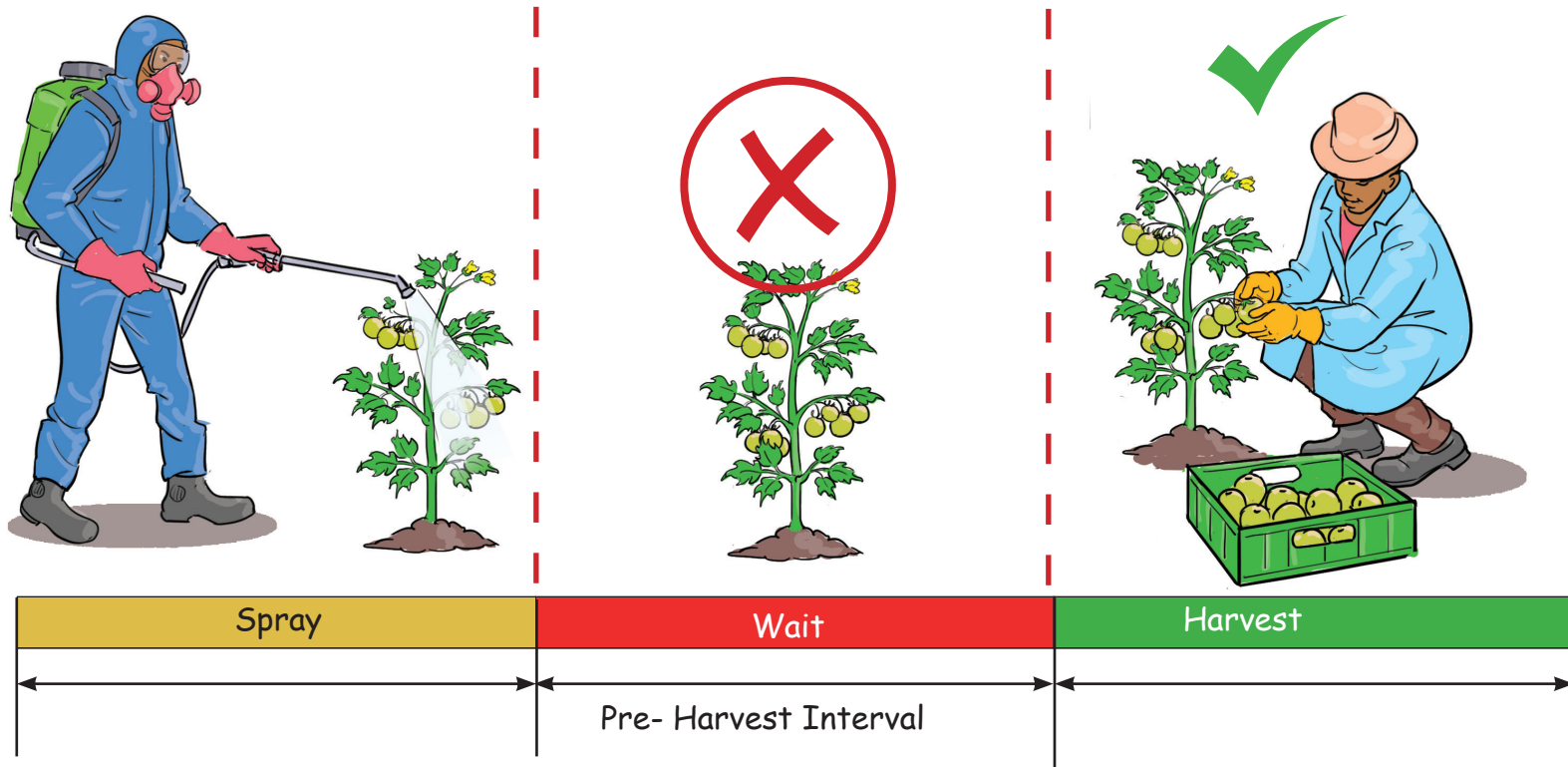
- Read the label before dispensing.
- Use a measuring equipment.
- Wear appropriate protective equipment (PPE).
- Dispense away from children, grazing field.
- The dispensing area should have running water and eye wash.



# Apply plant protection products at the right time for maximum benefits



## Observe pre-harvest interval to avoid exceeding maximum residue limits



- 1 Always read label instructions to know the Pre Harvest Interval.
- 2 Do not harvest crops before the Pre Harvest Interval lapses to ensure safe food.
- 3 The time indicated on the label has been tested to minimize pesticide residue.

## Maintain high standards when harvesting produce

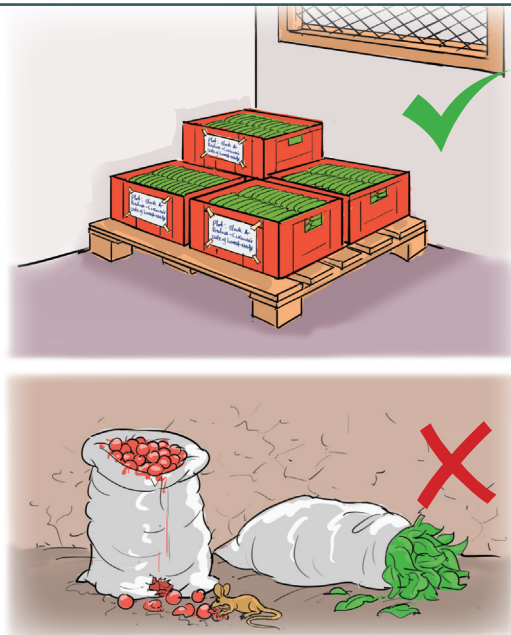


- Harvest when crop is not wet.
- Use clean harvesting equipment.
- Use potable water for post-harvest operations.
- Use packaging material that minimizes temperature build up, contamination and loss of quality.
- Store packaging materials away from contaminants.
- Produce will be tested for pesticide residue levels based on risk assessment.



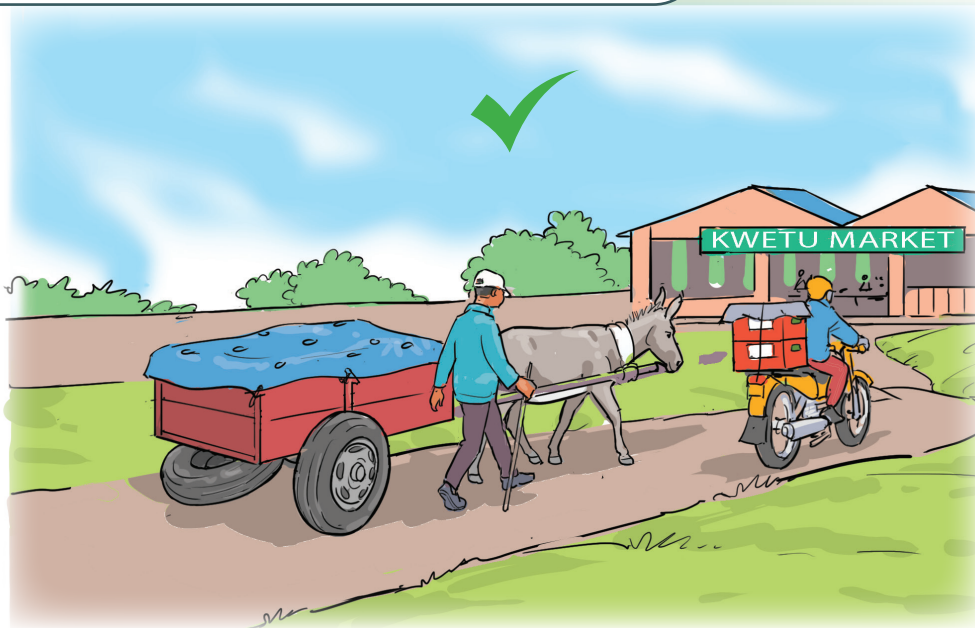


## Maintain high hygiene standards when storing and transporting produce



### Farm produce store:

- Should be separate from inputs.
- Free from pests, farm animals, pets, birds, and children.
- Should be well ventilated.
- Free from dust and water.



### Farm produce Transport:

- The mode of transport should be clean.
- Packing material for transportation should always be clean (eg crates)
- Produce should be clean and covered when being transported.
- Mode should minimise temperature build up, contamination and loss of quality.

## Keep records of all farm activities

PLANTING RECORD

Block No. A

Date of planting 9/11/2023

Variety planted

Lot No. 7	Subplot 2	Area 1000m <sup>2</sup>
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Expected date of harvesting 9/11/2024

Tree no. 1	9/11/23
Tree no. 2	9/11/23



### FARM RECORDS

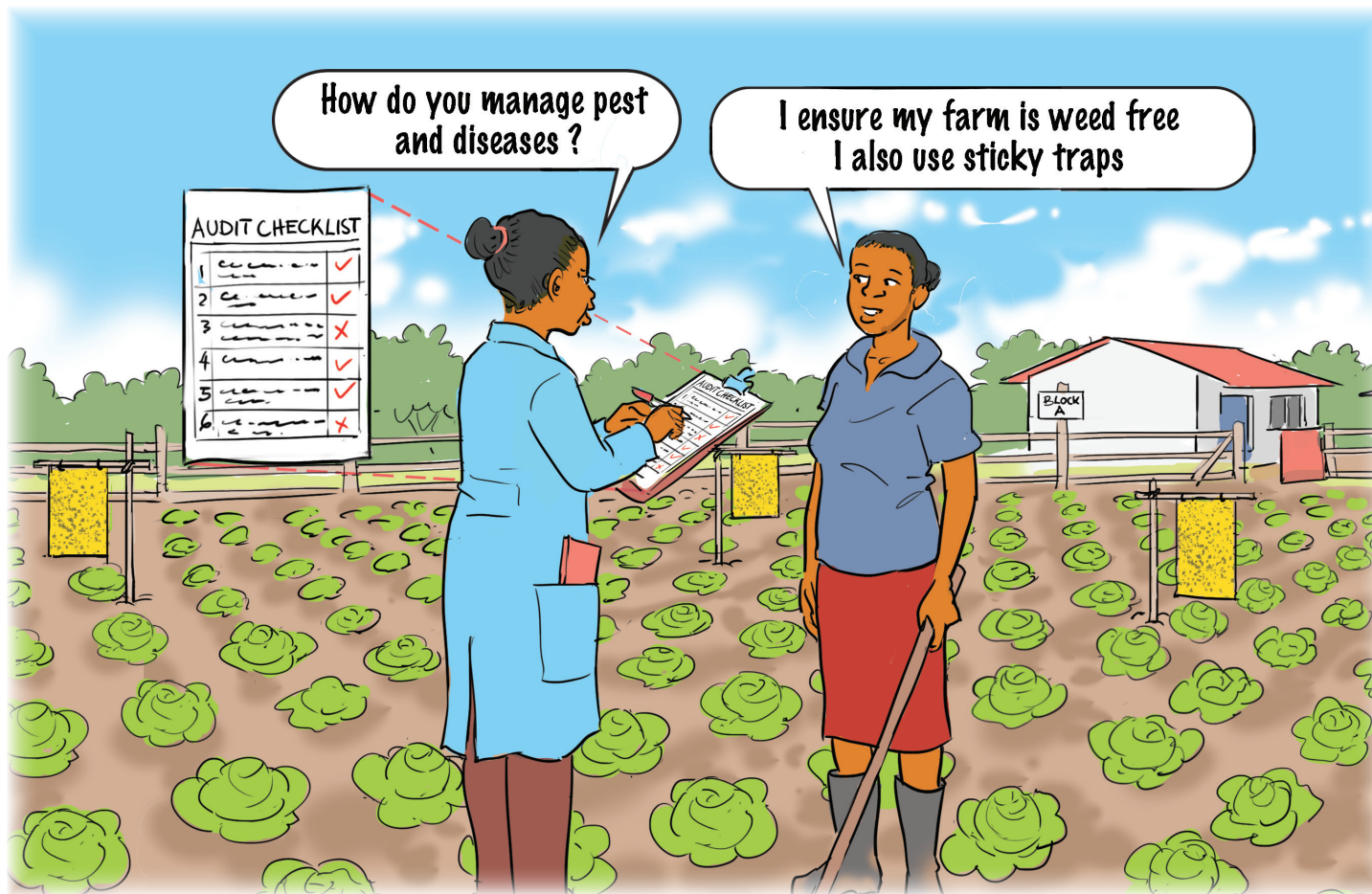
1. Planting Record
2. Spray Application Record
3. Hygiene Record
4. Calibration Record
5. Audit Record
7. Receipts
8. *Being* Records
9. *Karungu* Record

- Good record keeping helps to track all farm activities for decision making.
- Demonstrates compliance to legal requirements.



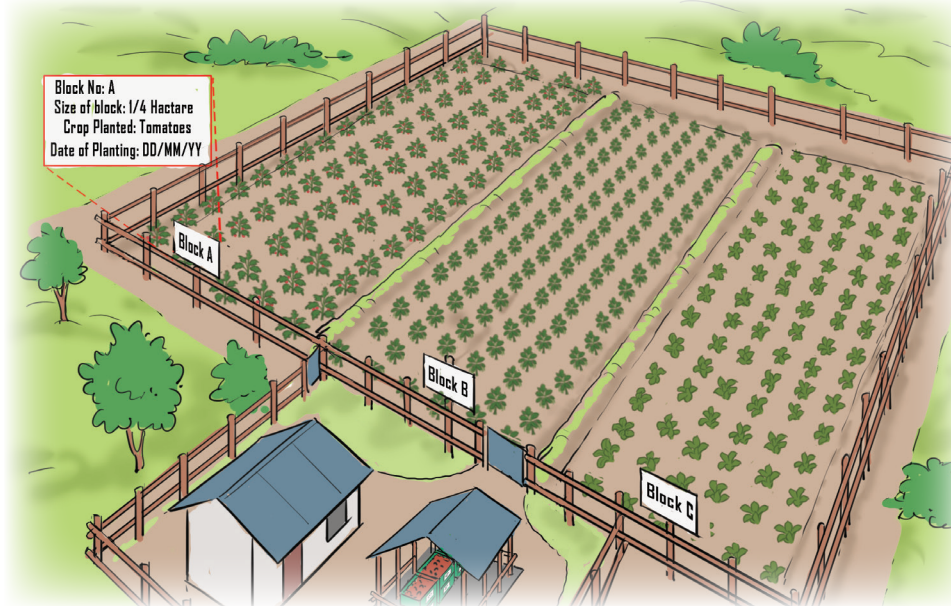
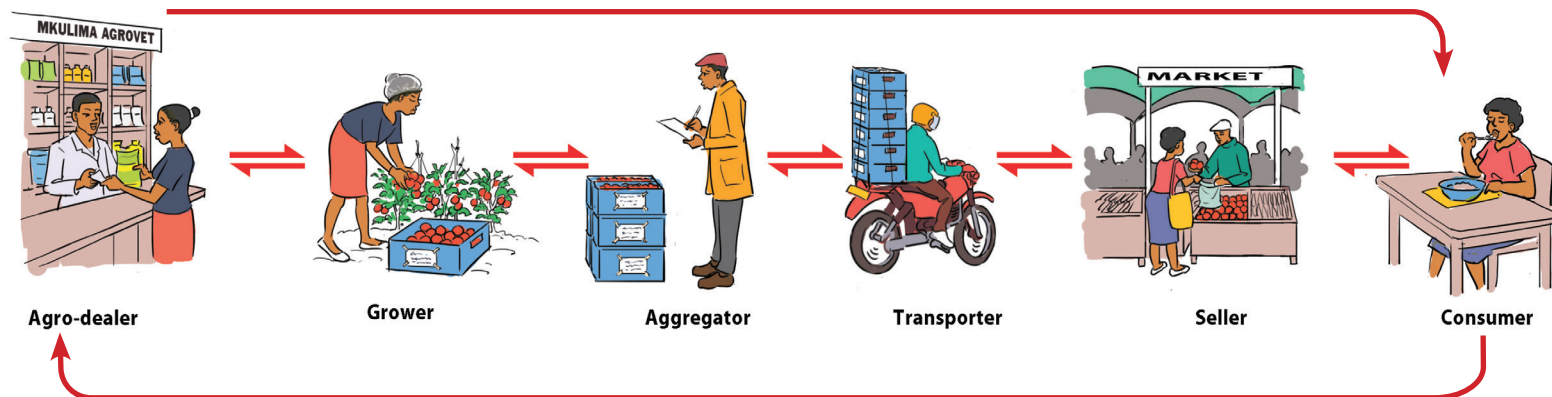


## Carry out internal audits for continual improvement



- Carry out internal audits at least once every twelve months.

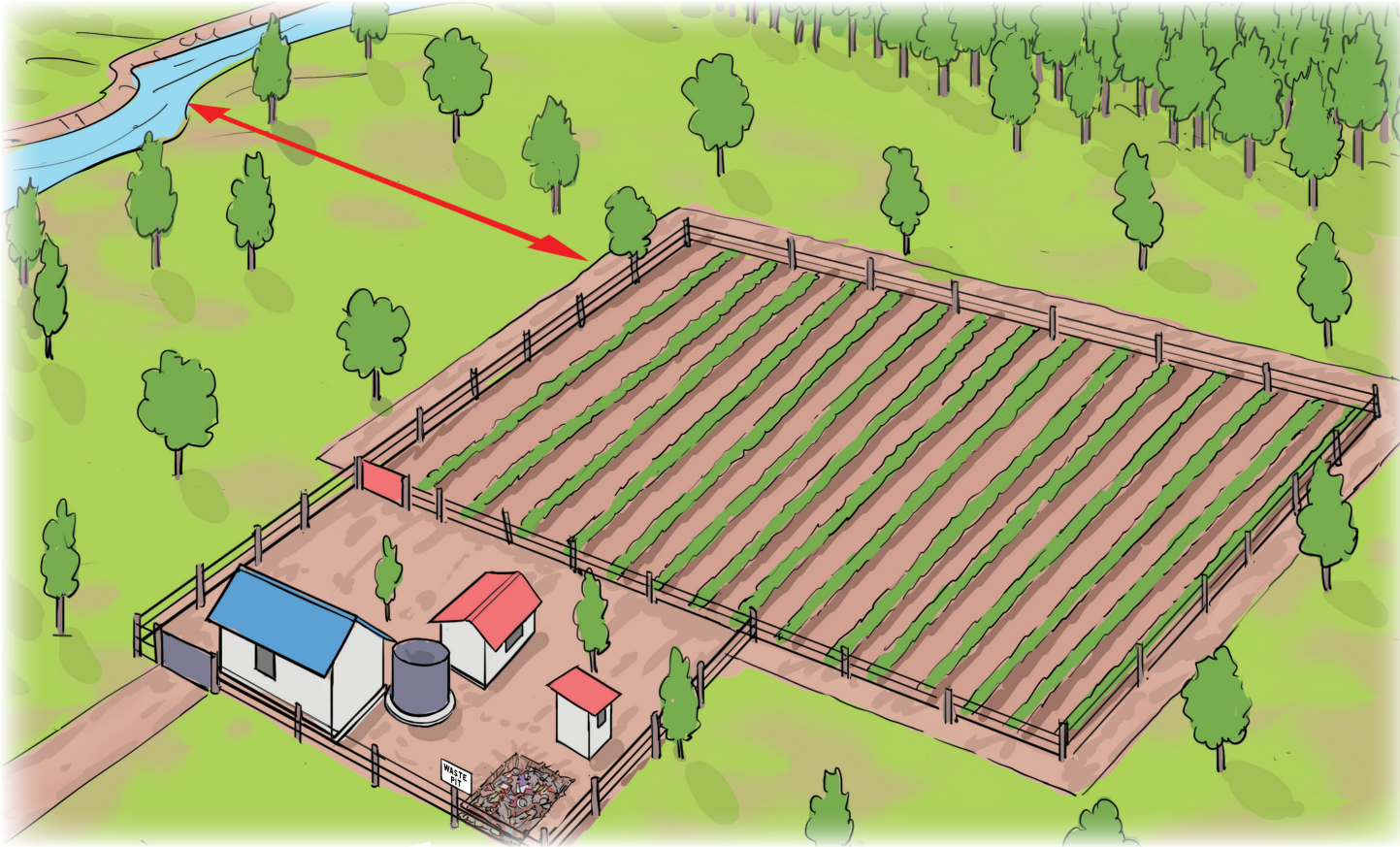
## Maintain a traceability system



- A traceability system helps to identify source of contamination
- Keep relevant records at all stages of production.
- Record keeping ensures an effective traceability system.



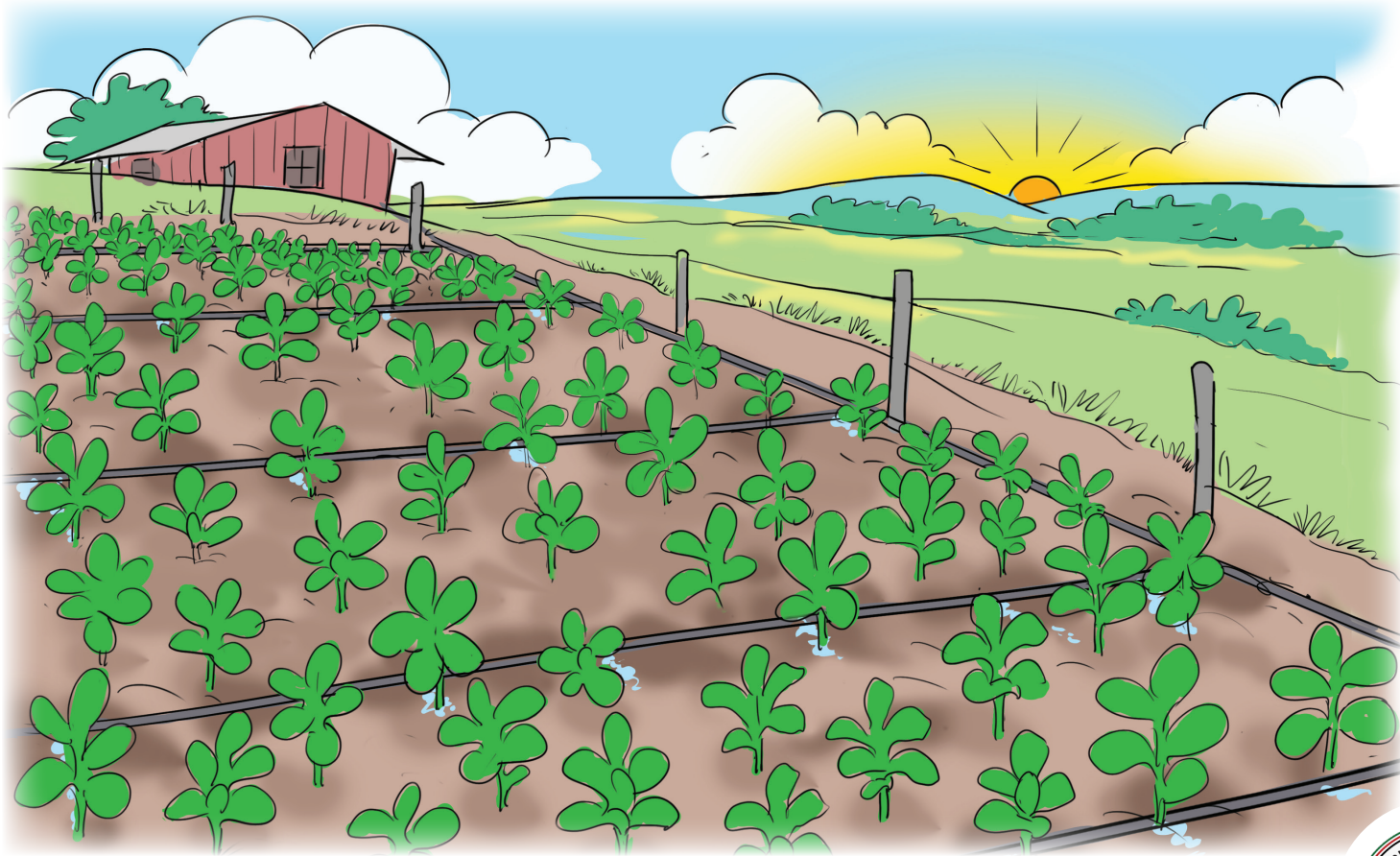
## Develop an environmental management plan based on risks identified during risk assessment



- Conserve riparian land and do not divert natural water course.
- Avoid polluting rivers and wildlife habitats when applying fertilizer and chemicals by leaving buffer strips around the planted blocks.



## Use water efficiently



- Always irrigate early mornings or late evenings when temperatures are low.
- Use a watering system that conserves water e.g drip irrigation.



Do not dispose plant protection product containers in water bodies nor re-use them to avoid poisoning





## Dispose plant protection products containers in an appropriate manner



Triple rinse

- 1 Quarter fill the container with water



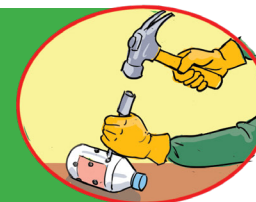
- 2 Close the container and shake for 30 seconds



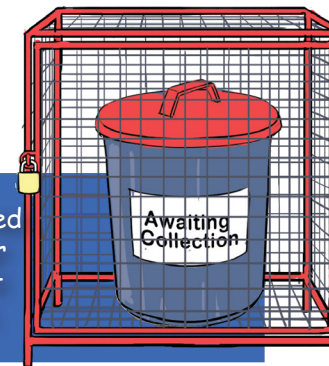
- 3 Empty the water into the mixing jar. Hold it there for 30 seconds or more. Repeat these steps 3 times



Puncture the container where applicable so it cannot be re-used



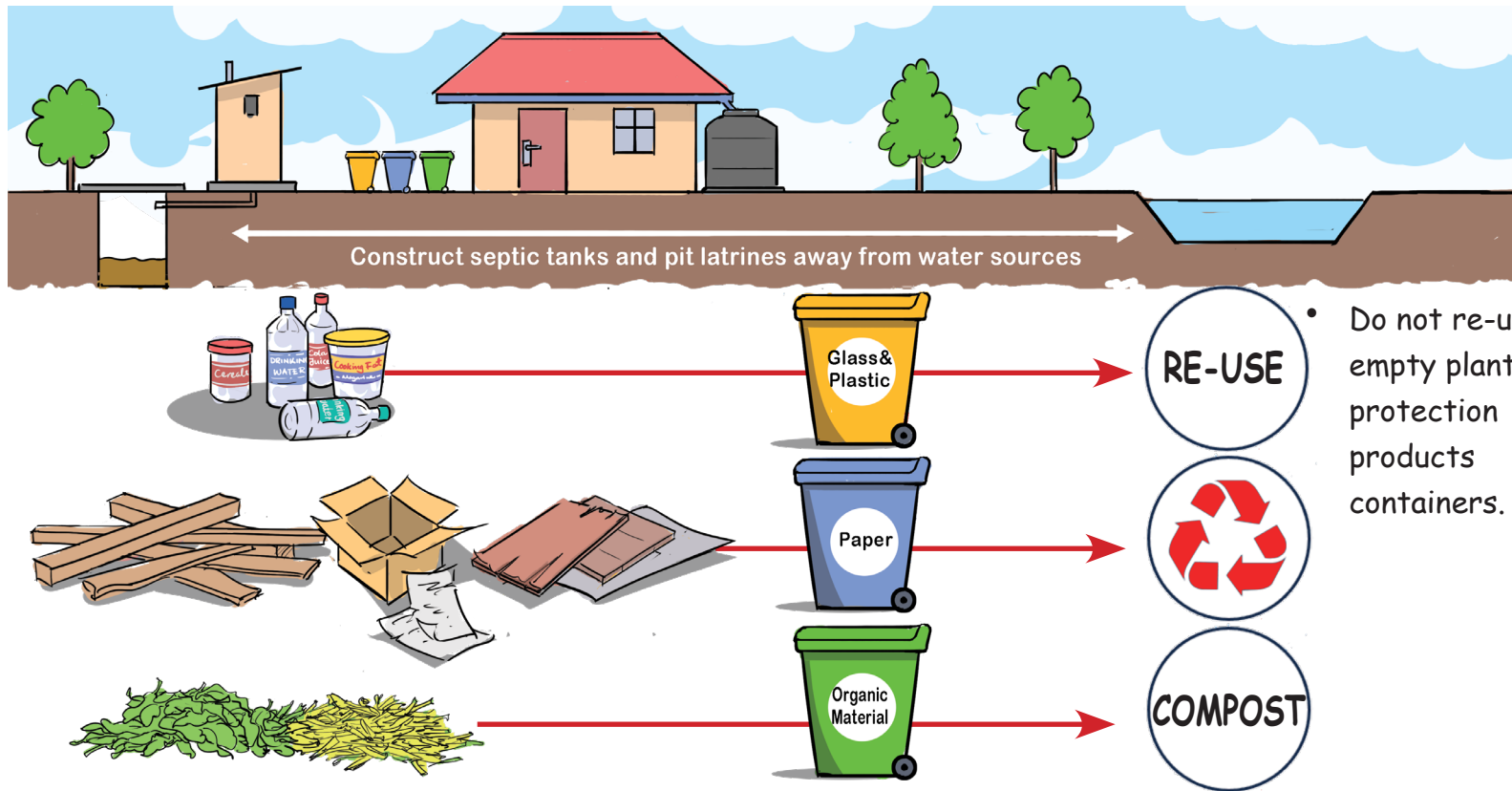
Put the punctured bottles together ready to be sent for incineration



- Dispose remnant spray mix (chemical and fertilizer) in a properly constructed DE-activation pit.

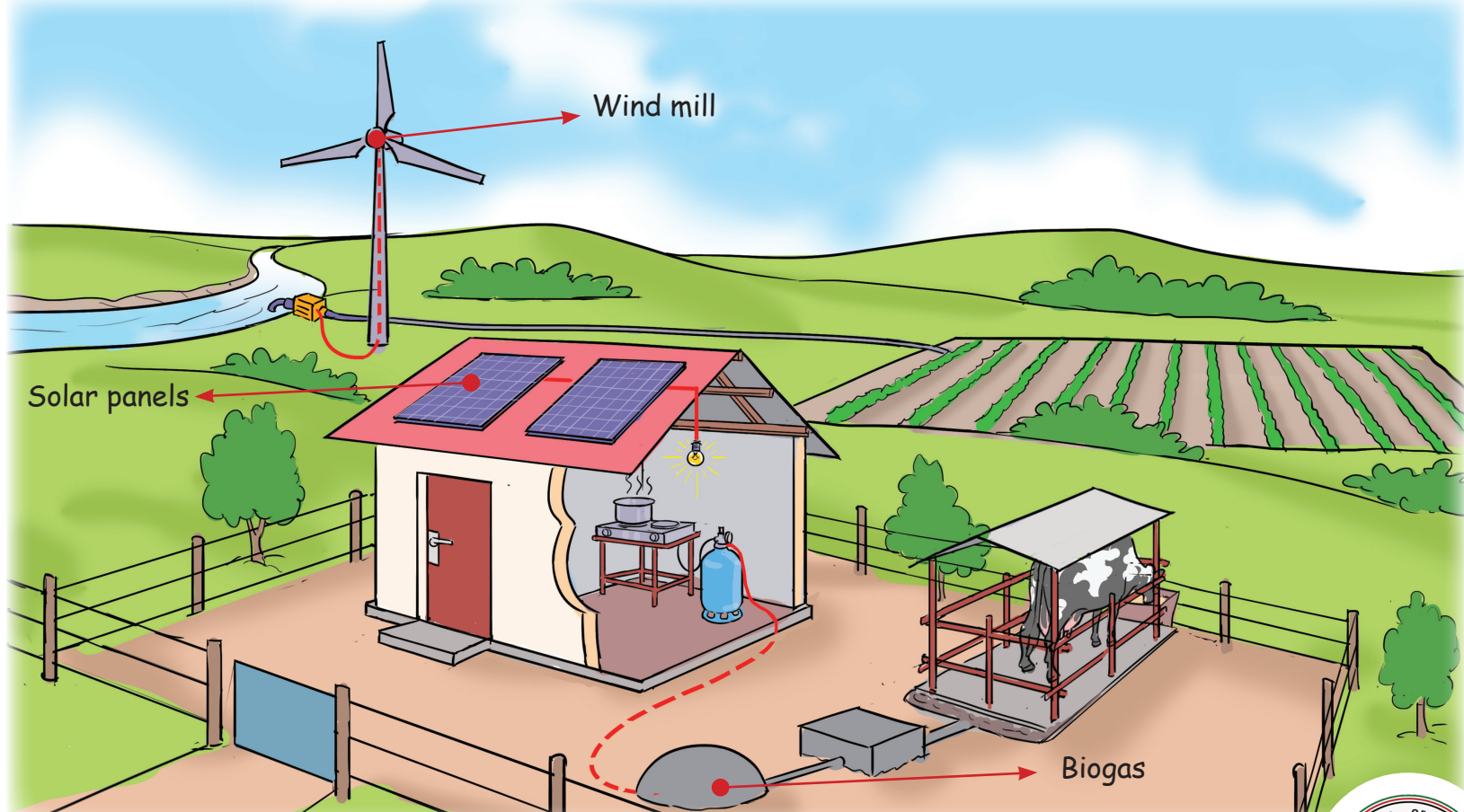


## Waste management



- Segregate waste properly.
- Waste treatment facilities, toilets, and septic tanks are constructed away from water sources.
- Reuse and Recycle Plastic, Wood, and Cardboard Materials.

## Use renewable sources of energy

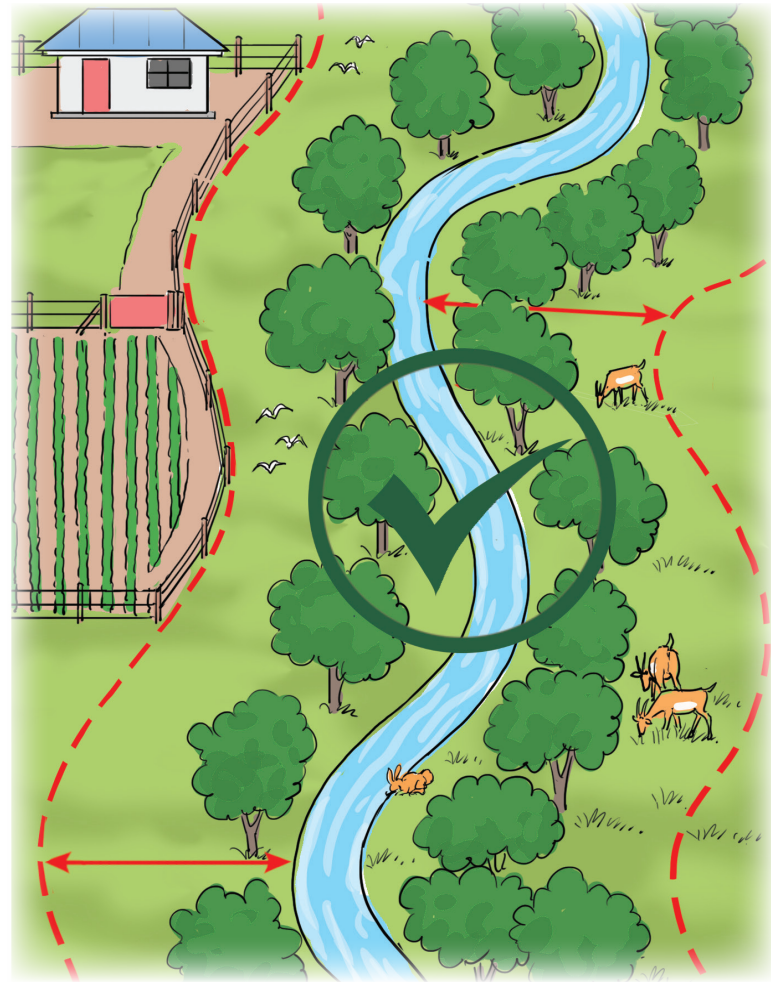
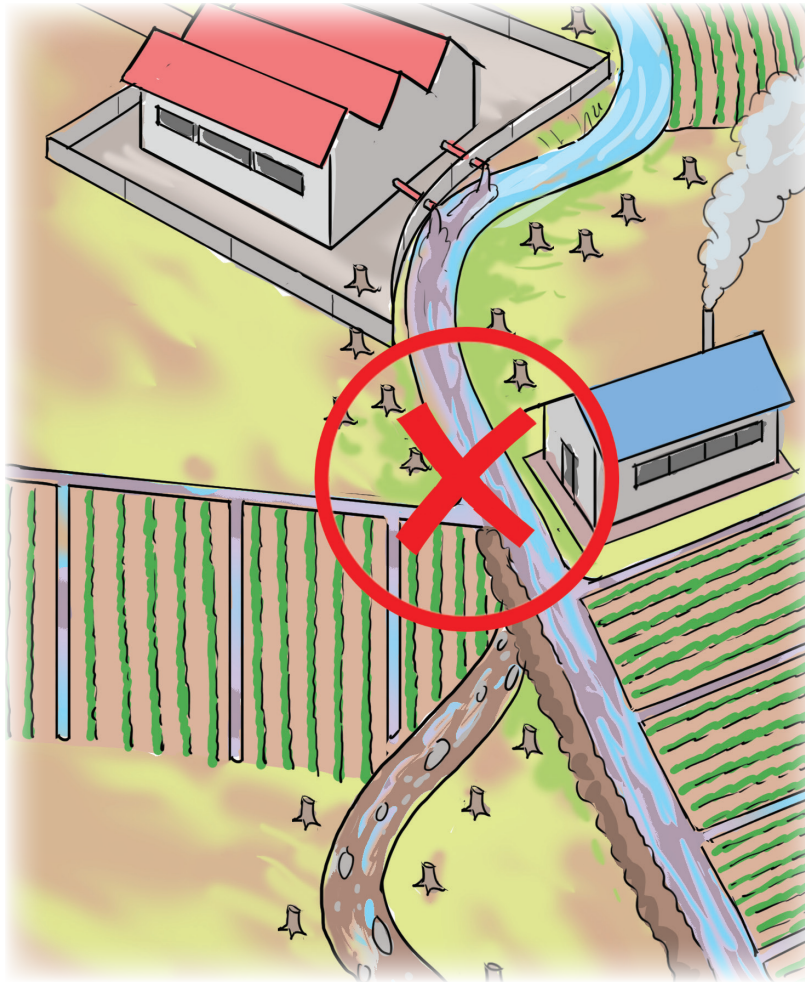


- Use renewable energy sources such as biogas, solar, wind to reduce carbon emissions generated by non-renewable energy sources such as fossil fuel, wood, gas.



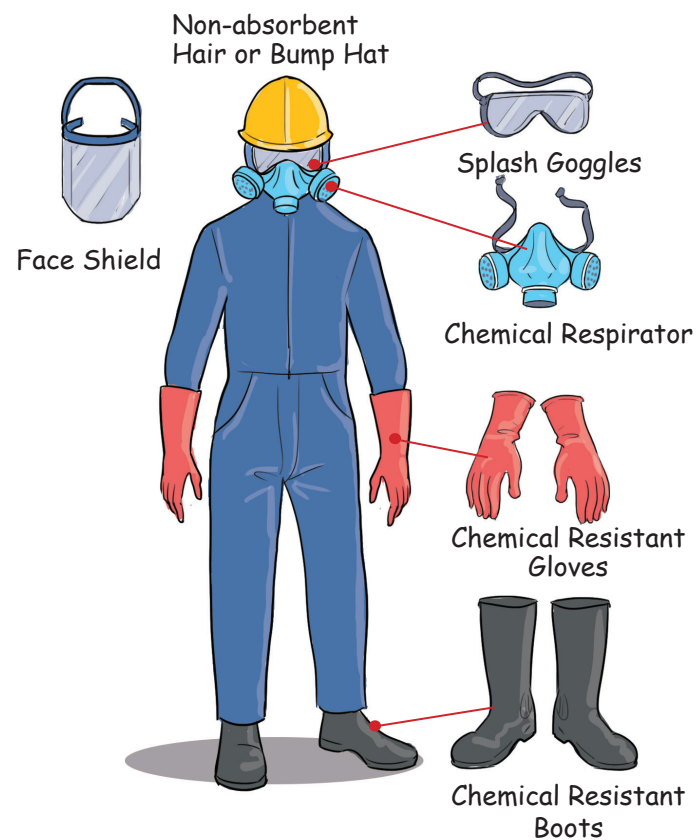


## Protect and conserve plant and animal species in their natural habitats



- Apply practices that protect plant and animal species and their natural habitats.

## Workers health requirements



1. Contact the county office for advice on the preparation of a Health Policy.
2. Provide appropriate PPEs to workers and visitors.

3. Keep spray PPEs separate from harvest PPEs.
4. Clean PPEs after use.





## Acknowledgements

We acknowledge The KS 1758 horticulture code of practice executive and implementation committees' contribution towards the development of this manual. The following organizations are represented in the committees: Agriculture and Food Authority-Horticultural Crops Directorate; Kenya Plant Health Inspectorate Service; Ministry of Agriculture and Livestock Development - State Department for Agriculture; Kenya Accreditation Service; Fresh Produce Consortium of Kenya; Fresh Produce Exporters Association of Kenya; Kenya Flower Council; Jomo Kenyatta University of Agriculture and Technology; Kenya Bureau of Standards; Society of Crop Agribusiness Advisors of Kenya; Pest Control Products Board, The Retail Trade Association of Kenya, and aak - GROW.

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