AFA

INTRO TO AGRO-FISHERY ARTS

SECURING FARM TOOLS, IMPLEMENTS, EQUIPMENT, AND FACILITIES

INTRODUCTION

- This lesson deals with the safety of farm tools, implements, simple equipment, and farm facilities. It includes simple repair, installation of preventive structures, and storage.

SIMPLE REPAIR AND MODIFICATION OF TOOLS AND IMPLEMENTS

- “Repair means to restore by replacing a part or putting together what is torn or broken”

WORKSHOP

- building for fabrication, repair and maintenance of tools, implements, equipment and parts of structures and provides a place where tools, supplies and spare parts are stored

Important Features of a Safe and Efficient Workshop

1.

- Sufficient room for the largest machine that may need repair, including workspace around it. If the machine is large, truss roof construction may be needed to provide the required space without intermediate supports.

2.

- An entrance that is both wide enough and high enough for the largest equipment that the shop has been designed to accommodate. If the building is enclosed with either solid walls or wire netting, a second door is essential for safety in case of fire.

3.

- Some means of lifting and supporting heavy loads. When the roof span is 3m or less, a timber beam is often adequate. For larger spans or very heavy loads a truss will be required. Alternatively, a portable hoist can be used.

4.

- Electric lighting and electrical service for power tools.

5.

- A water supply for both convenience and safety.

6.

- One or more fire extinguishers of a type suitable for fuel fires. Two or three buckets of dry sand are a possible substitute or supplement for a fire extinguisher.

7.

- Storage cabinets for tools, supplies and spare parts. Sturdy doors can be locked for security and also provide space to hang tools and display small supplies for easy access.

8.

- A heavy workbench attached to the wall or otherwise firmly supported. It should be 1 m high, up to 800mm deep and at least 3m long and equipped with a large vice. There must be sufficient clear space around it to maneuver work pieces and, if attached to a solid wall, ample window openings above it to provide light.

Simple garden tools are easy to repair. Spend a little time checking your garden tools for things to fix and recycle.

To replace a tool handle:

1. Clamp the tool blade in a bench vise.
2. Remove the handle from the hasp using a drill, hammer, or other tools as needed.
3. Insert the new handle into the hasp.
4. Tighten the handle in the hasp using fasteners. Use a screw and screwdriver to firmly attach the handle to the tool head.

To fix a leaky hose:

1. Cut through the hose on either side of the bad section using a sharp knife.
2. Attach male and female hose couplings to the cut ends, following the directions that come with the couplings. If the new hose fittings don't slide in easily, try softening the ends of the hose in hot water or lubricating them with soap or cooking oil.

To fix a broken tooth of a rake or fork:

1. Bring this to the shop and weld the broken portion of the tools. Do the same with the other tools and implements that need welding. For farm machineries that need repair, contact expert mechanics to do the job.

Installation of Preventive Structure

Philippines

- prone to **natural disasters** due to its **geographical location** and **physical environment**
- average of **20 typhoons** yearly

These typhoons trigger:

- landslides,
- flashfloods,
- mudslides,
- widespread flooding,

and cause destruction and damages to:

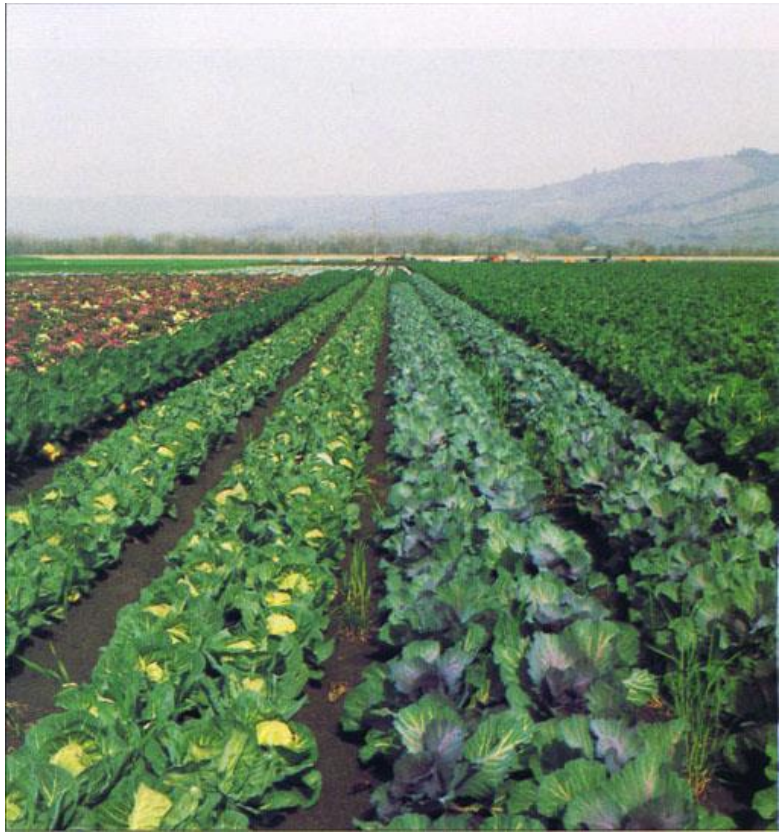
- homes,
- community buildings,
- communications,
- infrastructure, and
- agriculture.

- we also have to consider other elements that may cause loss or damage to our property, such as **stray animals**, **fire**, and **thieves**.

MULCHING

Cover Cropping

Multiple Cropping



Intercropping

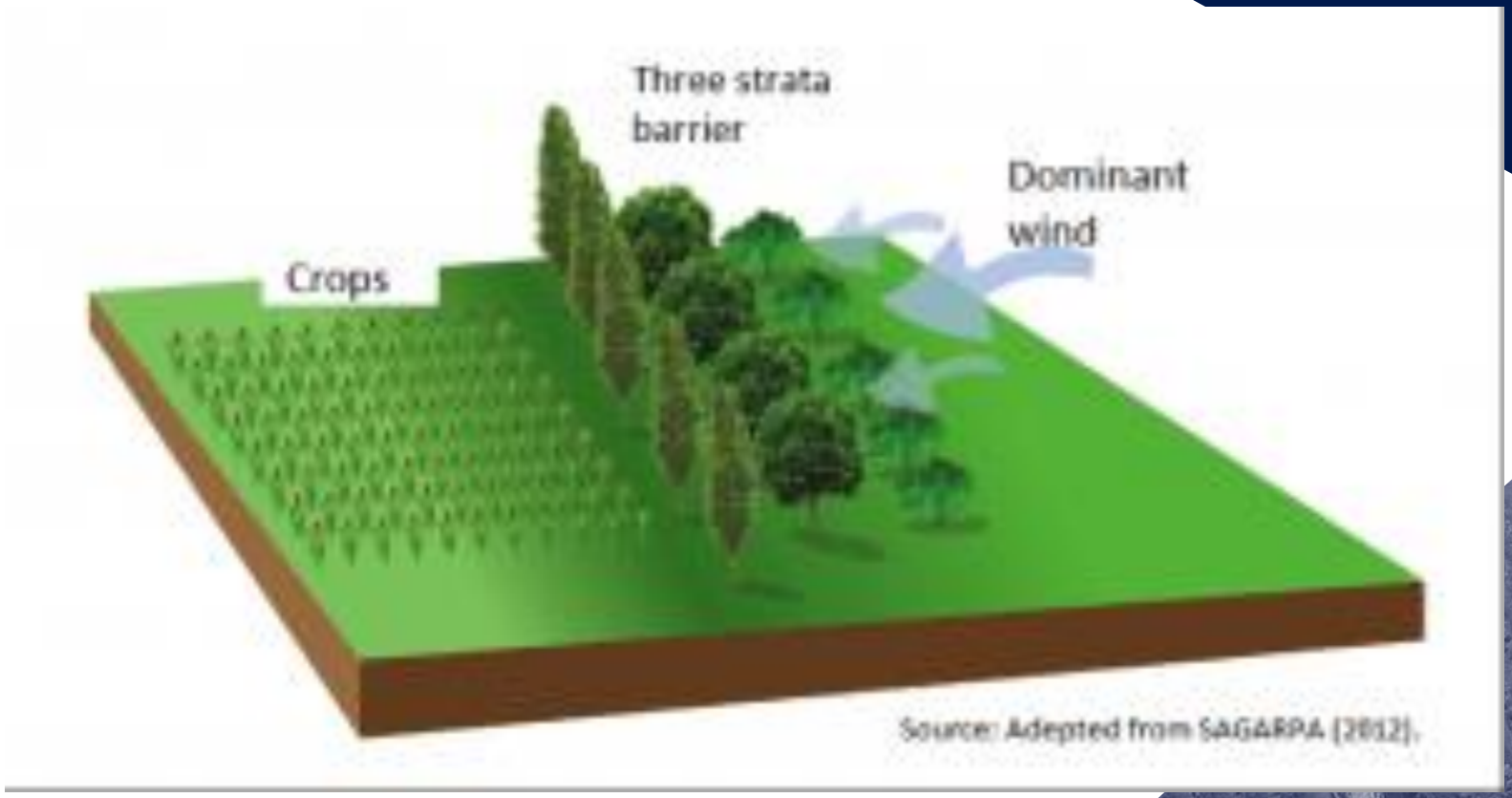
Riprap

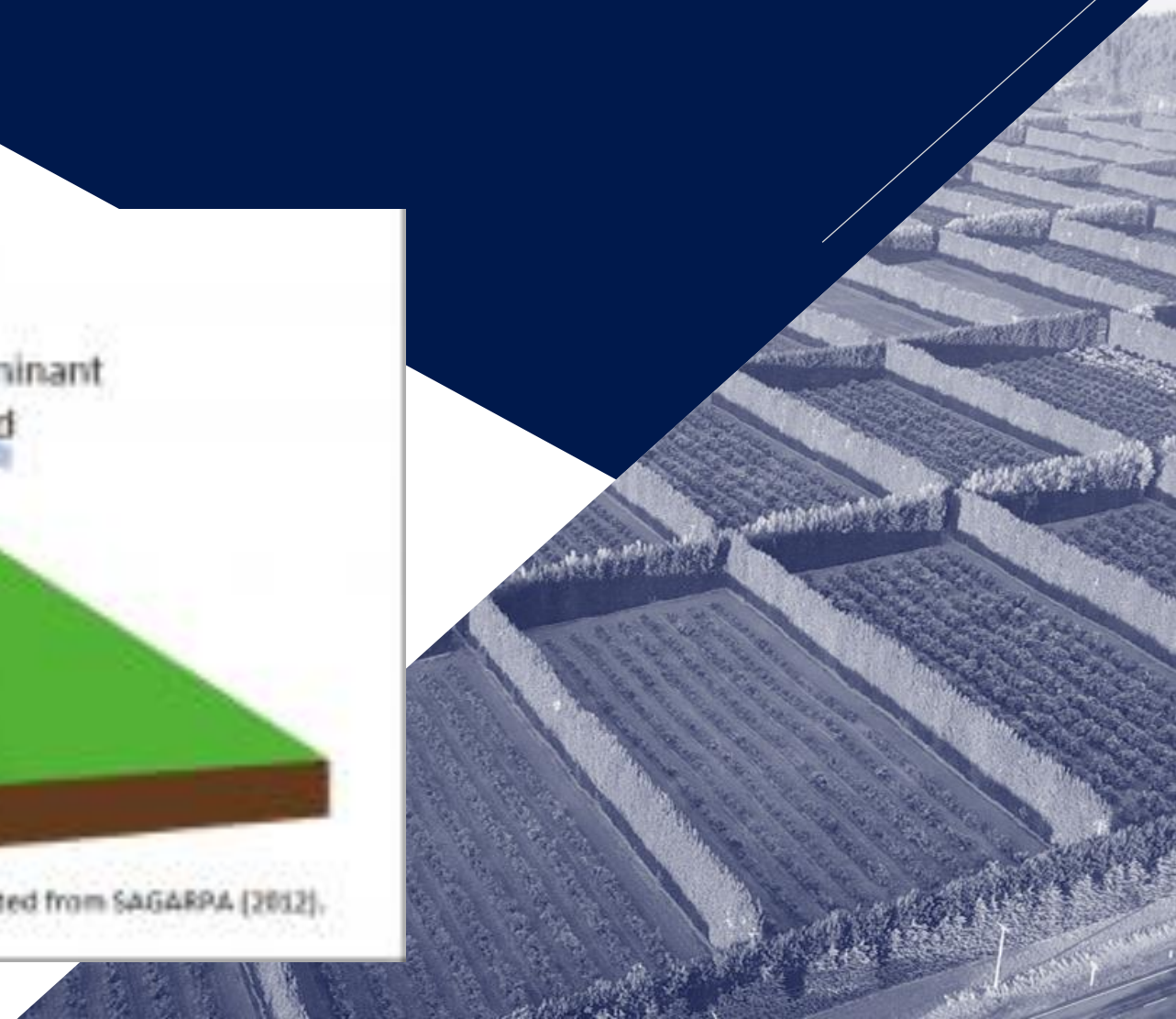
ROCK WALLS

Check Dams

Vegetated Waterways

WINDBREAKS


Three strata
barrier
Dominant
wind
Crops
Source: Adepted from SAGARPA (2012).



- “Windbreaks could be linear plantings of trees and shrubs designed to enhance crop production, protect people and livestock, and benefit soil and water conservation or buildings situated along vegetable areas or plantations”.

Types of WINDBREAKS

1. living (natural)
2. non-living (artificial)

LIVING WINDBREAKS

- mostly composed of **trees** and **shrubs**, and in some cases tall **grasses**.

NON-LIVING WINDBREAKS

- vertical structures made from a variety of materials including metal and plastic cloth.

- One of the primary economic advantages of a living windbreak is that it is a **cheap and cost effective technology** due to low establishment and maintenance costs.
- The primary economic disadvantage is that **a living windbreak may take several years to develop**; therefore, the economic benefit is not immediate.

Basic reasons why we plant windbreaks

- Reduce wind speed
- Windbreaks reduce heating and cooling cost to homes, and add value
- Provide a barrier from sound and site, smell
- Protect livestock
- Aesthetics -they look good
- Wildlife habitat -birds and little furry critters

Table 1. Below is a table indicating the facilities, physical conditions, possible calamities or disasters that may occur and the suggested preventive structures or contingency measures to be undertaken.

Physical Conditions	Facilities	Calamities/Disaster	Suggested preventive/ Contingency measure
Weak posts	Nursery shed	Typhoon	Put braces
Leaking roofing	Storage barn	Heavy rains	Put water sealant (vulcaseal)
Unsafe windows and doors	Farm shop	Thieves/burglars	Put grills and heavy duty padlocks
		Fires	Provide fire hydrants call fire department
		Run off	Construct drainage canal
Dilapidated	Vicinity fence	Astray animal	Reconstruct fence

Prepare Farm Facilities and Equipment for Storage

Machinery and implement storage

- On many small-scale farms or schools, machineries and implements are stored in a simple shed just to keep them.
- The few small-sized hand tools and implements used in farming can normally be stored in any multipurpose structure at the farmstead or backyard.

Machinery and implement storage

- The tools, implements, and equipment need only to be secured for their protection from theft and vandalism, and kept dry avoid deterioration of the metal and wooden parts.
- The tools will last longer if they are cleaned and working surfaces are greased prior to storage.

Machinery and implement storage

- The tools may be hung on rails or hooks on the wall or from the ceiling for order and convenience and to protect them from dampness penetrating an earth floor in the store.
- Implements, such as plows, harrows and cultivators, are little damaged by rust when left outdoors.

Machinery and implement storage

- If they are properly cleaned prior to storage and metal surfaces, particularly all threaded parts used for adjustments, are greased, then a little rust is not likely to harm performance enough to justify the cost of a storage structure.
- A fenced compound can offer adequate protection against theft during storage.

Machinery and implement storage

- Although implements containing wooden parts are more susceptible to decay, those parts can usually be replaced at low cost.

Machinery and Equipment Storage Buildings

There are numerous precautions that should be observed when storing machinery on the farm. Precautions include:

Machinery and Equipment Storage Buildings

- Buildings where machinery and power tools are stored should be located far enough away from structures that house livestock and hay in case of fire.

Machinery and Equipment Storage Buildings

- Fuel storage tanks should preferably be located below the ground, and a minimum of 40 feet from the nearest structure. Fuel cannot be stored in the same structure as machinery or power tools.

Machinery and Equipment Storage Buildings

- Electrical lines coming into the building should be high enough to allow equipment to pass underneath.
- Electrical systems in machine sheds should be sufficient for the power tools and equipment that will require the use of electric current.

Machinery and Equipment Storage Buildings

- Electric outlets should be of the three-prong grounded type.
- Machinery storage buildings should not be used to store debris.

Machinery and Equipment Storage Buildings

- Doors on machine sheds should be wide enough so machinery can safely pass through without getting caught. It should be easy to pull or slide open doors and close them freely in case of an emergency.
- Exits should be clearly marked.

Machinery and Equipment Storage Buildings

- Doors should be lockable to keep out children and unwanted visitors.
- Floor surfaces should be level and smooth, free of bumps and protruding rocks.
- Equipment should be parked so there is enough space for a person to walk freely around it.

Machinery and Equipment Storage Buildings

- Buildings should have adequate ventilation for the starting or running of an engine within the structure. (Note: engines should not be left running inside a building for a prolonged period of time unless the exhaust is being properly vented externally).

Machinery and Equipment Storage Buildings

- All tools and accessory equipment should be kept picked up and stored in their proper place, e.g., air hoses, oil cans, spare tires, jacks.

Machinery and Equipment Storage Buildings

- Keys should always be removed from all equipment or machinery to prevent children or unauthorized people from starting them.

Machinery and Equipment Storage Buildings

- Do not allow non-employees inside the machine shed. Children should never be allowed to play around or inside the machine shed or on farm machinery itself.

Fuel and Chemical Storage

- Many materials that are used on farms fall into the category of "hazardous materials," since they are either highly flammable or poisonous. Other materials frequently used on farms, such as fertilizers and cement, also have special storage requirements, mainly because they are hydroscopic, i.e., they tend to pick up moisture from the atmosphere.

Storage of Hazardous Products

- Generally speaking, accidents that happen among children are due to the carelessness of adults. Hazardous products are not kept in places where children could not reach them. Unconsumed chemicals are kept in bottles of beverages and not properly labeled.

Hazardous materials stored on farms normally include the following:

- Highly flammable materials, such as engine fuel and oil, such as petrol, diesel, kerosene and lubricating oils.

- Gases, such as butane, propane and acetylene. (Oxygen promotes the combustion of other materials and must be handled carefully.)
- Paints containing flammable solvents, cellulose thinner or alcohol..)

- Poisonous materials such as herbicides, insecticides, rat poison and sheep and cattle dips.
- Acids and alkali such as detergents, cleaning liquids, lye and quicklime (CaO).

- Medicines, such as veterinary drugs and supplies. Some drugs may require refrigeration.
- Wood preservatives and corrosion inhibiting paints.

Storage of Fertilizers and Other Non-hazardous Materials

- Some fertilizers are hydroscopic and easily pick up moisture from humid air or from the ground. This causes them to become lumpy and to deteriorate.
- Fertilizers and cement are normally sold in plastic - lined bags offering some degree of protection. They should be handled and stored so that the bags are not punctured or otherwise damaged.

Storage of Fertilizers and Other Non-hazardous Materials

- In addition, the storage conditions should be as dry as possible. Bags should be placed on a raised platform in the storage. This will allow ventilation and prevent ground moisture from penetrating from below.

Storage of Fertilizers and Other Non-hazardous Materials

- The pile should be protected from rain by a roof or some other type of watertight cover. Fertilizer can be very corrosive to metals and should not be stored close to machinery or tools.

Greenhouses

- A greenhouse is a structure using natural light within which optimum conditions may be achieved for the propagation and growing of agricultural crops, for plant research or for isolating plants from disease or insects.

Greenhouses

- Greenhouses should be located in an open areas with no shade from trees or buildings and with access to road
- The land should be nearly level and well drained.
- the site should be sheltered from excessive wind.

Greenhouses

- A good, clean water supply is of paramount importance.
- Electricity will be required if ventilation is to be mechanized and if stationary machinery is to be used in the greenhouse.

Preparation of garden tools for long storage

- Begin by gathering all hand tools and removing any dirt or rust with a wire brush, steel wool, or light sandpaper.
- Sharpen the tools using a file that is made specifically for this task. Remember to move the file in one direction only, and at a 45-degree angle. Sand wooden handles with sandpaper and follow up with a coat of paste wax or linseed oil if necessary.

Preparation of garden tools for long storage

- Spray all metal parts with a good coat of lubricating oil. This will prevent rust when your tools are stored in your tool shed or garage.

Preparation of garden tools for long storage

- Store your tools in a high place above the ground and in a dry spot.
- Drain water hoses and hang them in the garage or in the workshop.
- Don’t forget about the lawn mower. If you don’t have the chance to use up the gas before storing it, add a gas stabilizer to the fuel tank to prevent corrosion.

Preparation of garden tools for long storage

- Spray all metal parts with a good coat of lubricating oil. This will prevent rust when your tools are stored in your tool shed or garage.

Activity

- Conduct an interview on experienced crop producers in the locality on how they secure and store their farm facilities. Make sure you answer the following questions:

Questions:

1. What tools, implements, and equipment do farmers have to store?
2. How do they secure and store their tools, implements, and simple equipment?
3. What preventive structures do these farmers have?

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