Proper drainage

Coconuts grow poorly in water logged areas. Surface water should be removed by constructing drainage canals. High ground water level hamper the growth of the trees because it limit the penetration of the roots to the soil. If root development is good it would provide the tree with enough nutrients necessary for proper growth.







Water logged soils

Water logged soil

Well drained soil

Intercropping

Plant crops between the coconut trees in order to utilize the spaces in between. Generally, the crops would depend on the planting distance of the coconuts. Farms with coconuts that are planted at 10 x 10 meters are good for fruits and other permanent crops like coffee, or cacao. Intercrops should be shade loving or shade tolerant. In farms using hedgerow planting system there is sufficient space for planting annual crops because enough sunlight can reach the ground. Vegetables and cereals require big amount of sunlight.

Coffee and cacao are examples of intercrops but thorough analyzes should be done considering the agronomic and market conditions of the crops.

Intercropping is good for business minded and innovative farmers since it requires additional investments. It is a more complex operation compared to growing coconut only.



Intercropping with vegetables







Intercropping maximizes the use of land

Quality Improvement

Quality improvement is very important. Conventional copra, produced using the traditional drying techniques, is contaminated with aflatoxin and other toxic substances. White copra, on the onther hand is free from toxic substances. Oil produced from white copra is cleaner and safer compared to the oil from conventional copra.

In order to produce white copra proper timing of harvest and use of proper drying equipment and technology is needed.

Quality mprovement

Proper timing of harvesting

Harvesting of the nuts at the right age would maximize the production. The quality of the copra is affected by immature nuts. Young nuts produce rubbery copra which has a high moisture content and low oil recovery. Harvest only 11-12 months old nuts for best results.



Immature Nuts



Mature Nuts



Rubbery copra from immature nuts



White copra production

The traditional tapahan or pugon produce dark copra containing harmful substances from the smoke passing through the nuts being dried. Sun drying method produces copra with high moisture content often accompanied by molds due to improper drying.

Molds produce aflatoxin, a sustance which is hazardons to human. It remains in the copra meal after extracting the oil content. Copra meal is an important component of livestock feeds. Aflatoxin could then be transferred to the animals eating the feeds and ultimately to humans eating the meat of the animals.



Kukum dryer building



The furnace of the kukum dryer

Use of Kukum Dryer

Kukum dryer produces white copra when properly used. It was dry coconut hunks as fuel. Contamination from smoke is prevented since drying is done. Using the air. Drying operation can take place even when it is raining.



Copra sun dried on a pavement





Traditional tapahan uses coconut husks fired directly below the nuts being dried









White copra produced with a kukum dryer



Sun drying in the field





Moldy copra produced from improper drying by tapahan and sun dryer

Quality Improvement

Safe Handling of Chemicals

Coconuts do not require chemicals to control the pests and diseases except during the early stages of growth. When the trees are already tall it is more effective to use biological control agents such as tetrastichos and green muscardine fungus. However, if there are intercrops that require agrochemical application, it is necessary to protect yourself from the efforts of agrechemicals.





In spraying chemicals, wear full protective equipment consisting of a hat/cap, googles, chemical filter mask, long sleeves, long pants, gloves and boots. Chemicals should not touch or enter any part of your body.

Use chemicals according to the instructions stated in the package especially on the dosage and manner of application. Do not buy fake products because it might lead to unintended result.



Chemical filter mask

It is important to wear a chemical filter mask, and not a simple dust mask. A dust mask does not protect against toxic chemicals.



Dust mask



Wear gloves when applying chemical fertilizers. Do not touch it directly with bare hands.



Rubber gloves

Safe storage of chemicals

Chemicals should be stored properly in order to avoid accidents.



Proper storage of agrochemicals. It has a lock, enough ventilation and warning signs



Improper storage, absorbent materials and no lining

Agrochemicals should be stored away from food products. They should also be stored away from flammable materials like gasoline, diesel, or kerosene. The shelves should be lined with non-absorbent materials and should be locked and kept out of reach of children.







Safe handling of Chemicals

Ecosystem Conservation

If your farm is located next to a natural ecosystem, such as forests, lakes, wetlands, rivers or streams, you need to do your best to conserve it. In this chapter, you will learn how to conserve the ecosystem within or around your farm.



Seedling of native trees



Coconut trees near forest

Plant native instead of exotic trees for reforestation. Native trees are resistant to pests and diseases and they provide food and habitat to wildlife. Examples are Narra, Duhat, kamagong, and other fruit and forest tree species.

Plant trees in areas that are not suitable for growing coconuts like gullies, rocky areas, and steep slopes. These areas are ideal as conservation areas.



Buffer zones



Rocky and steep areas as conservation areas

Plant shrubs and small trees around the house in the farm and along the boundaries in order to increase the biodiversity of the farm. These buffer zones will become the habitats of natural predators of the pests of the coconuts. Ecosyster Conservati



Plant trees along the banks of the streams or rivers that pass through the farm in order to stabilize the banks and prevent erosion.



Let trees that are natural habitats of wildlife alongside the coconuts in the area.



No ecosystem destruction





Prohibit hunting of wildlife in the farm in order to increase its population. Biodiversity in the farm helps control pests that destroy the crops and carry disease to the trees.



Ecosystem Conservatio

Water Conservation

Water is fundamental for life. If the source of water becomes contaminated, it can seriously affect people's health and the health of the livestock. Fish and other animals in the water would disappear. If the source of water dries out, it will be impossible to sustain people's lives and that of livestock. In this chapter, you will learn how to conserve water.





Washing of Equipments



After spraying chemicals do not wash the equipment in a lake, river, or stream. Chemicals contaminate the water and affect the lives of the fish and animals in the water. If the equipment is washed in water bodies, the health of people and animals will be affected and the fish will be gone.



Pour the water used for washing the equipments in a pit containing charcoal. The charcoal will adsorb the toxic chemicals in the solution.

Water Conservatio

Collection of rainwater

Rain is an important source of water especially in areas that are dry in most times of the year. By collecting rainwater that falls on the roof you can keep a stock of water at home. This saves time to fetch water, and gives you an important stock of water during the dry season.



A house collecting rainwater in a tank

No solid wastes into water bodies





Do not throw any solid waste in natural bodies of water and in water sources. Wastewater should not be disposed in the natural bodies of water unless there is an analysis to show that it does not contain pollutants.



Water Conservation



Soil Conservation

Soil is the basis for agriculture. The top soil is very rich in nutrients and microorganisms, and is very important for the crops. It is the place where the roots of the plants develop. It is where the soil air and water which is essential to plant nutrient uptake is found. However, when it is exposed to air and water, the topsoil will easily be washed away and the nutrients will be lost. In this chapter, you will learn how to protect the soil from erosion.



Bare soil in steep slope



Intercropping provides maximum utilization of area and also covers the soil

In sloping areas soil should not be exposed especially when the annual rainfall is high. Planting of annual crops which requires constant plowing for land preparation should be discouraged. Intercropping with permanent crops like banana, cacao, coffee, or fruit trees is recommended.

When the soil is steep, terracing or planting hedgerows across the slope is recommended.

For farms without intercrops, planting cover crops should be done. Legumes like calopogonium or centrosima provide excellent cover for the soil. They produce high volume of biomass and fix nitrogen in the around. This is a natural way of enriching the soil. They also suppress the growth of noxious weeds like cogon.





Leguminous cover crops suppress the grasses in the farm.

Soil onservation

Mulching

During copra production, excess coconut husks are produced after drying with kukum. These materials should be used as mulch for the farm. Husks should be scattered around the base of the trees and allowed to decompose to provide nutrients to the trees. They also suppress the growth of weeds. And keep the soil from drying during hot weather. These also encourage multiplication of earthworms. Other waste materials for mulching are dry leaves and midribs.



Organic wastes from cut grasses and dry leaves as mulch



Excess husks spread around the base of the trees

No burning

Burning should not be used to prepare the soil for planting. It destroys the nutrients in the soil. It also kills all the animals, plants, and microorganisms along its path. It exposes the soil to erosion and can cause bush fires.





Burning of area in preparation for planting

Waste Management

There are organic and inorganic wastes in the farms. When waste is burned or badly managed, it can affect the health of the farmer and contaminate the environment. On the other hand, if waste is well managed, it can become a useful resource the farm. In this chapter, you will learn how to manage organic and inorganic waste.

Organic waste management

Organic wastes can be disposed in a compost pit to become organic fertilizer. Composting can be done by adding enzymes that will hasten decomposition. It can also be used as mulching materials in the farm.



Compost pit for organic wastes



Plastic wastes should not be burned



Wastes are segregated. Organic wastes and inorganic wastes (like plastics) are collected separately for proper disposal.

Waste Ianagemer

Plastic waste management

Plastics does not decompose, so it should not be thrown on the ground. They need to be collected and kept until collected by a public collection system.





Empty chemical containers

Do not throw away empty chemical containers anywhere. They should be triple rinsed and kept. Manufacturers accept them if they are returned. Organize your group to collect the empty containers and return to the suppliers for proper and safe disposal.



Chapter 9 Good Working Conditions

Children in school

School aged children need to go to school during the week, so however busy the farmers are with the harvest, they should not take them out of the school to help in the farm.

Children cannot be employed on a farm as a hired labor. Children can only help on the farm outside the school hours, and they should not help for long hours to the extent that it affects their schooling. Children must not do any dangerous or heavy work on the farm.





A boy splitting the coconuts for drying



Workers should be paid according to the Regional Minimum Wage Law. Minimum wages vary in different regions. The Department of Labor and Employment - National Wages and Productivity Commission provides the different rates in the regions of the country. Note: Hiring children under 15 years old is prohibited.

There should be no discrimination in hiring of workers. In choosing workers, the race, color, gender, age, religion, social class, political tendencies, nationality, sexual orientation and civil status should not be used as basis for not hiring a person.



Paying the worker in accordance with the minimum wage law



Farm Management

All the things you have learned in this Guide need to be implemented on your farm. In order to ensure the implementation of the activities, you first need to plan them. In an action plan, you need to write down the activities, timelines for the execution and the responsible persons.

Records of costs, yields and returns should also be kept to control the economic viability.

As you plan your activities, a simple farm map is a very useful tool. You can indicate on the map where you need to conduct soil erosion control, where you need to plant trees or grasses, where you need to establish live hedges and the location of the water sources to be protected.

Record keeping

It is recommended to document the important activities on your farm. By keeping records of your activities, you can reflect on your past activities, analyze them and find ways to improve them. By looking at the records, the internal inspectors and external auditors can also tell that you have been managing your farm well.



Record keeping

The following are the basic activities to be recorded at the farm level:

- Chemical spraying (if any)
- Compost/ chemical fertilizer application
- Tree/ grass planting
- Harvesting
- Training of workers (if you have workers to be trained)
- Hiring of workers (if any)

What to record for chemical and fertilizer applications:

Name of product

Operator name

Equipment used

Plot

Date

Quantity

Dosage

What to record for training of workers:

- Date
- Topic of training
- Trainer
- Names of participants
- Signature/fingerprint of
- > participant

What to record about hired workers:

- Date
- Name
- Type of work
- Working hours salary

Farm Managemen

Traceability

Farmers and their group should never mix non-certified with the certified copra at any point. Certified copra needs to be separated at all stages of transaction: during harvesting, drying, storage, and transport to the mill.



Drying of certified copra and non-certified copra should not be done simultaneously.





