



Techno Guide

COFFEE

CONTENTS

- I.** The Coffee Plant
- II.** Coffee Production
- III.** Coffee Management
- IV.** Harvesting Operations
- V.** Coffee Processing

The Coffee Plant

Coffee is a brewed beverage with a distinct aroma and flavor, prepared from the roasted seeds of the *Coffea* plant. It is one of the world's most important crops, given the higher number of people living from it. From Ethiopia, coffee spread across Arabia, and eventually found its way into cups around the world.

Genus

- A genus of flowering plants whose seeds, called coffee beans, are used to make coffee.
- It belongs to the Rubiaceae family.
- Four known varieties of coffee are Robusta, Excelsa, Arabica, and Liberica.
- The Philippines is one of the few countries in the world where all four varieties of coffee are grown on commercial sale.



Varieties

1. Robusta (*coffea robusta*)

Robusta is commonly known as “kapeng manipis”. Its taste is fairly strong with caffeine content of 2% to 2.5% compared to Arabica.

It is high yielding and more resistant to pests and diseases. It thrives well in areas with elevation ranging from 600 to 1,200 meters above sea level.

It is also the main ingredient in the production of instant coffee.



2. **Excelsa** (*coffea excelsa*)

Excelsa is known as “kapeng makapal” and has a distinct pharmacopial taste.

This variety can be grown in areas with elevation of 600- 1,000 meters above sea level. Its berries are born in heavy cluster, varying in size, while its pulp and parchment are thick.

It is resistant to drought.



3. Arabica (*coffea arabica*)

Arabica coffee is locally known as “kapeng tagalog”. It is the most commonly grown coffee variety in the world because of its excellent flavor and aroma.

It has a relatively low caffeine content ranging from 0.8%-1.3%.

It is grown in high elevation of more than 900-1,800 meters above sea level. It thrives well in mountainous areas in Mindanao and in the Cordilleras.



4. **Liberica** (*coffea liberica*)

Liberica is locally known as “kapeng barako,” characterized for its very strong pharmacopial taste and flavor, powerful body, and distinct aroma.

This variety could be grown to wider soil types in areas with elevation of 600- 1,000 meters above sea level.



PHYSICAL CHARACTERISTICS AND REQUIREMENTS FOR CULTIVATION

SPECIES CHARACTER	ROBUSTA	EXCELSA	ARABICA	LIBERICA
ECOLOGY	Elevation: 600 - 1,200 above sea level	Elevation: 600 - 1,000 above sea level	Elevation: 900 - 1,800 above sea level	Elevation: 600 - 1,000 above sea level
	Temperature: 13 and 23 degree celsius	Temperature: 10 - 30 degree celsius	Temperature: 10 and 20 degree celsius	Temperature: 10 - 30 degree celsius
PLANT HEIGHT	Trees: large; umbrella- shaped; 4.5 meters	Trees: 3 meters	Trees: 3 meters	Trees: upright with straight trunks; can grow up to 9 meters
ROOT SYSTEM	shallow	deep root system	deep root system	deep root system

PHYSICAL CHARACTERISTICS AND REQUIREMENTS FOR CULTIVATION

SPECIES CHARACTER	ROBUSTA	EXCELSA	ARABICA	LIBERICA
INFLORESCENCE	cross pollination	self pollination	self pollination	self pollination
FLOWERS	white with five to six petals	large and white with four to six petals	white and creamy with short pedicles	white with four to six petals
LEAVES	thin which have more wavy margins	wide leaves are thicker than Robusta but thinner; smoother and more rounded than Liberica; young leaves are usually shiny with bronze-violet color	wavy leaf margins; light green leaf color and thin leaves	thicker than Excelsa and twice as long as Arabica

PHYSICAL CHARACTERISTICS AND REQUIREMENTS FOR CULTIVATION

SPECIES CHARACTER	ROBUSTA	EXCELSA	ARABICA	LIBERICA
FRUITS/ BERRIES	bearing of fruits commences on its third year from transplanting	bearing of fruits starts in 3 years after transplanting	bear fruits two to three years after transplanting	bearing fruits starts 3 years after transplanting
	borne in heavy cluster	borne in heavy cluster, varying in size and usually bigger than Arabica but smaller than Liberica		borne singly or in small clusters

Comparative Features of Leaves



Robusta



Excelsa



Arabica



Liberica

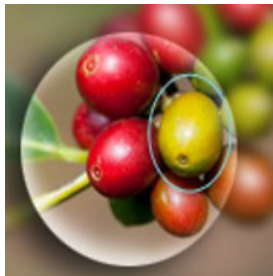
Comparative Features of Fruits/Berries



Robusta



Excelsa



Arabica



Liberica



Coffee Production

Important Considerations in Establishing a Coffee Plantation

1. Agro-climatic requirement
2. Choosing the right planting materials
3. Identifying cropping system
4. Shade establishment

Agri-Climatic Requirements

- Elevation
- Temperature
- Sunshine Requirements
- Wind Requirements
- Relative Humidity
- Rainfall
- Soil ph
- Soil depth
- Organic Matter

AGRO-CLIMATIC REQUIREMENTS

REQUIREMENT	LIBERICA	EXCELSA	ROBUSTA	ARABICA
Elevation, (MASL)	600 - 1, 000	600 - 1, 000	600 - 1, 200	900 - 1, 800
Temperature (C)	10 - 30	10 - 30	13 - 26	10 - 20
Sunshine requirements	50%	50%	50%	50%
Wind requirements	Slight	Slight	Slight	Slight
Relative humidity (%)	70 - 90	70 - 90	75 - 85	75 - 90
Rainfall (mm)	150	150	200	200
Soil ph	5.6 - 6.5	5.6 - 6.5	5.6 - 6.5	5.6 - 6.5
Soil depth (m)	1.5	1.5	1.5	1.5
Organic matter	rich in OM	rich in OM	rich in OM	rich in OM

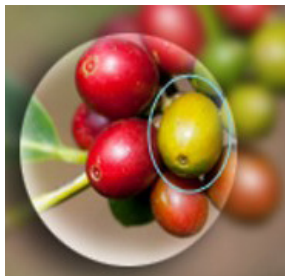
Planting Materials/Species



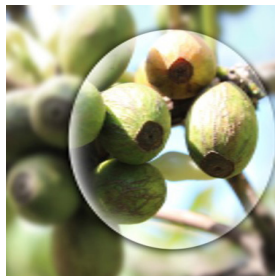
Robusta
(Kapeng Manipis)



Excelsa
(Kapeng Makapal)



Arabica
(Kapeng Tagalog)



Liberica
(Kapeng Barako)

Source of Planting Materials



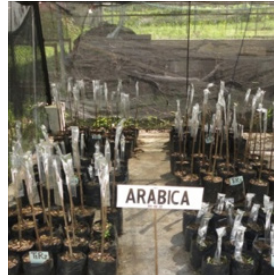
Cavite State University Coffee Nursery
Accredited by the BPI

Farmers should buy their seedlings from Bureau of Plant Industry (BPI)-registered nurseries.

Methods of Propagation



Seeds



Grafting



Cuttings



Tissue Culture

Coffee Cropping Patterns

- Coffee Monocropping
- Coffee - Coconut
- Coffee - Banana
- Coffee - Fruit trees
- Coffee - Fruit trees - Banana
- Coffee - Fruit trees - Papaya
- Coffee - Fruit trees - Banana/ Papaya - Pineapple/ Vegetables

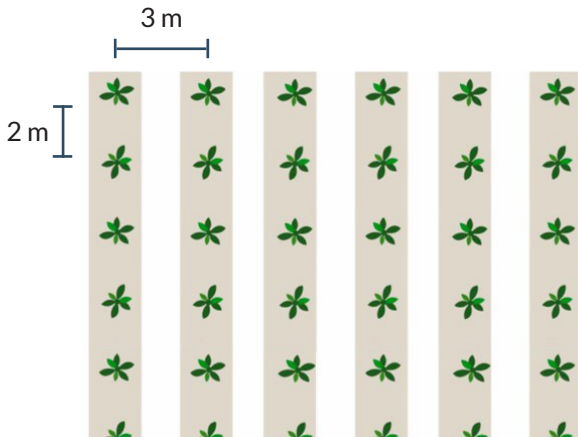
Coffee Companion Crops

- Coconut
- Lanzones
- Cacao
- Guyabano
- Other trees with upright growth habit

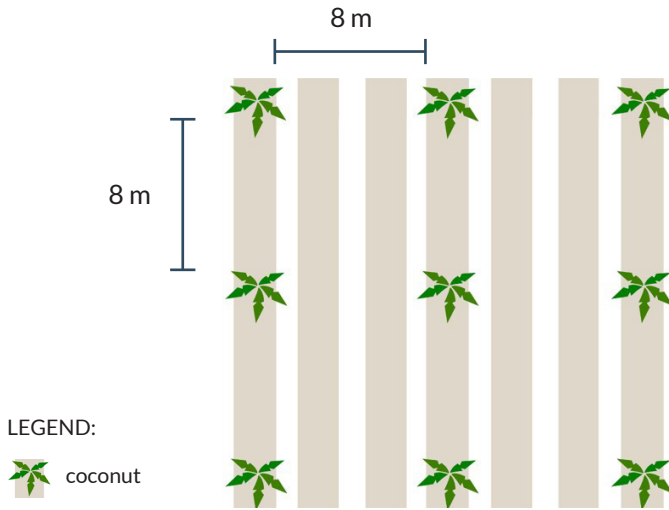
Cash Crops that can be Intercropped with Coffee

- Banana
- Papaya
- Pineapple
- Vegetables such as those that belong to the gourd family (cucumber and squash), pea family (all kinds of beans and peanuts), and night shade family (eggplants, peppers, and tomatoes)

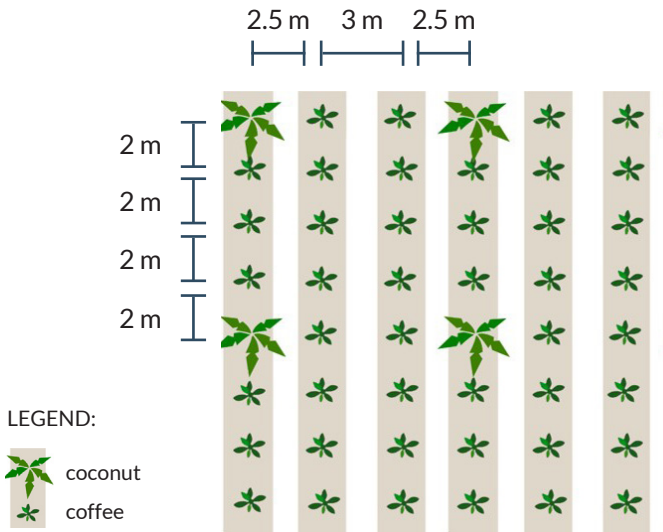
Coffee (Robusta) Monocropping



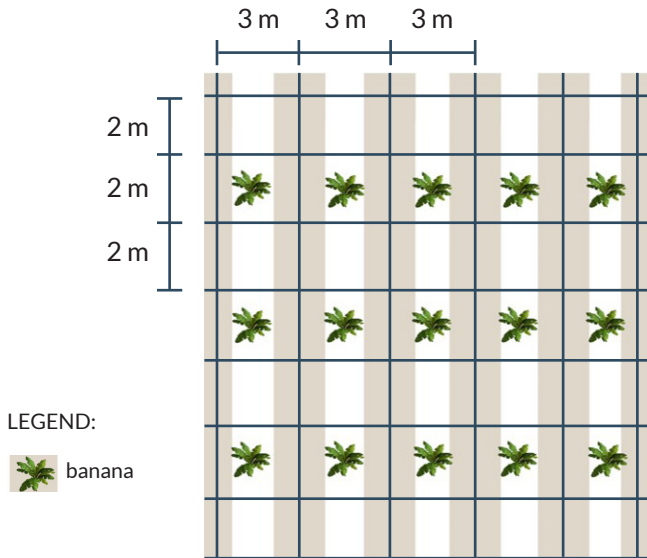
Coconut as Companion Crop



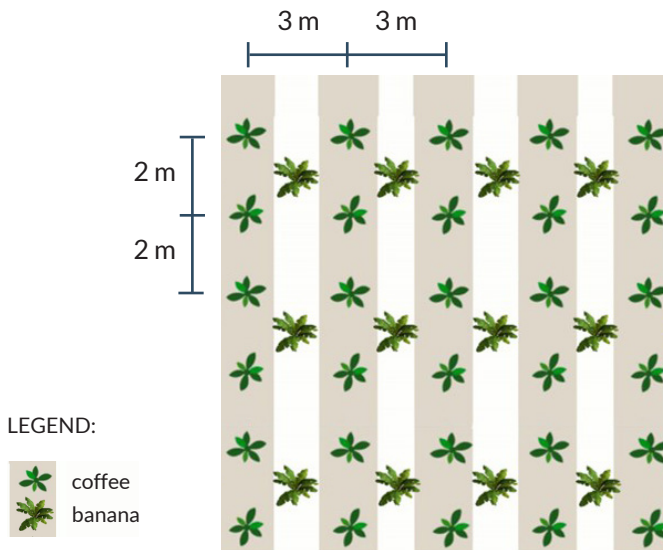
Coffee-Coconut Cropping Pattern



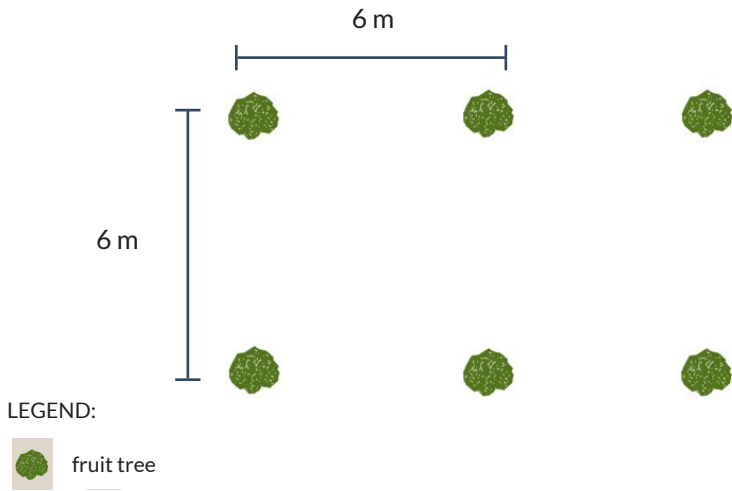
Banana as Companion Crop



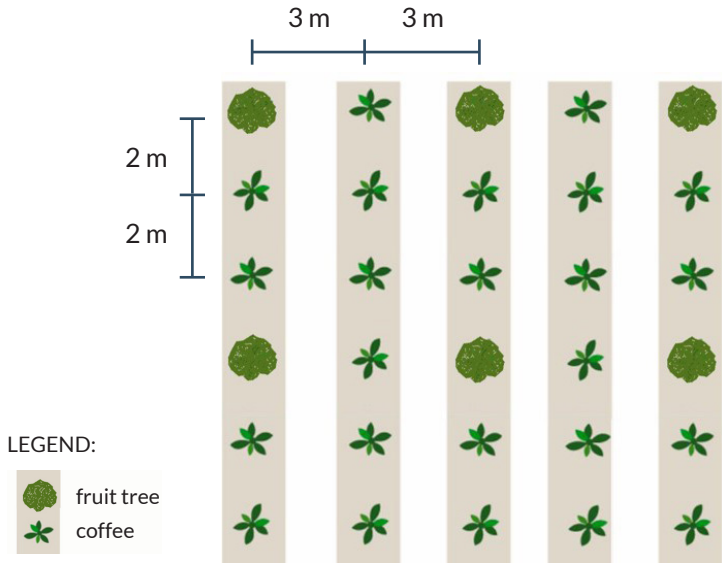
Coffee-Banana Cropping Pattern



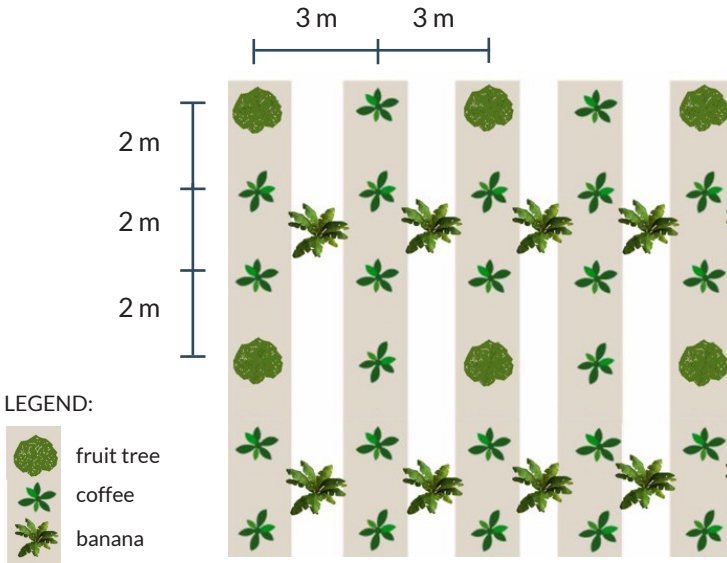
Fruit Trees as Companion Crop



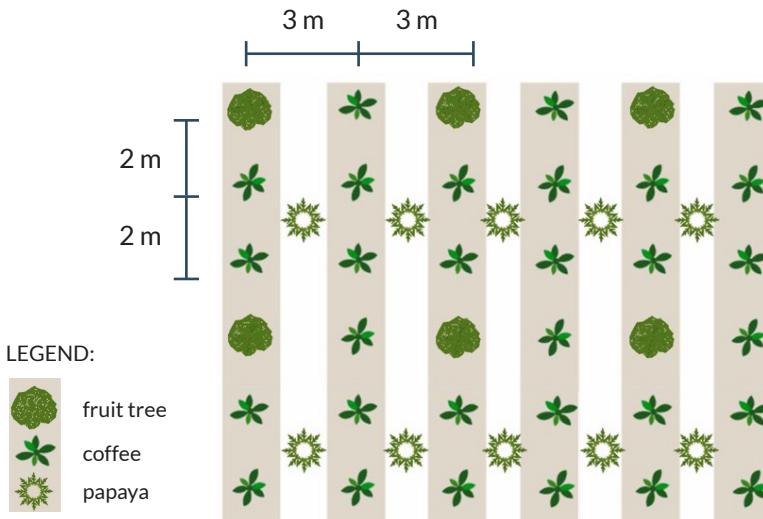
Coffee-Fruit Tree Cropping Pattern



Coffee-Fruit Tree-Banana Cropping Pattern



Coffee-Fruit Tree-Papaya Cropping Pattern



Shade Establishment

Shade trees need to be well established before coffee trees are planted out.

Plant shade trees one year before planting coffee. Do not plant shade trees at the same time or after planting the coffee seedlings.



Steps in Establishing a Coffee Plantation

- Land Preparation
- Lay-outing, Staking, and Hole Digging
- Transplanting
- Weeding/Mulching

Land Preparation

Intensive clearing is necessary for newly open area.

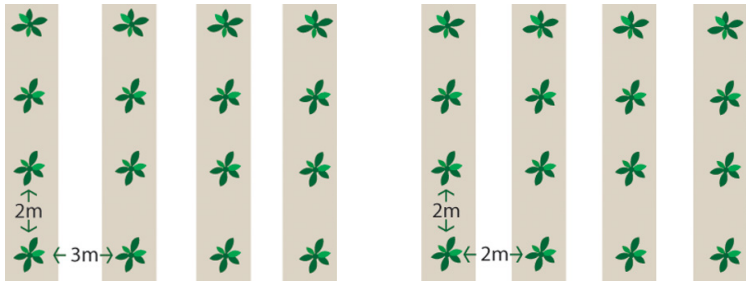
Clear the land by slashing weeds and removing trees unless they can be used as windbreaks or shade trees.



Layouting/Staking and Hole Digging

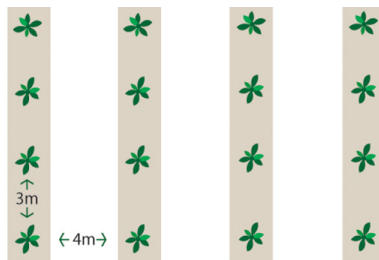
Establish a straight base line along the boundary.

Follow the recommended planting distance:



Robusta (3m x 2m)

Arabica (2m x 2m)



Liberica and Excelsa
(2m x 2m)

If intercropping is desired, recommended planting distance for Liberica and Excelsa is 4m x 4m; Robusta is 3m x 2.5m; and Arabica is 2.5m x 2m.

Mark the area to place the planting holes by staking the rows and the hills.

Dig holes of around 40cm x 40cm x 40cm to provide room for root development.

Backfill the holes with top soil. Add compost.



Transplanting



Field planting can begin when the coffee seedlings in bags have a minimum of six to eight leaf pairs. Planting out in the field should be done on-set of rainy season and on cloudy days.



Avoid planting trees when conditions are windy, hot and dry, or during the hottest part of the day.

Before planting, thoroughly water the seedlings in the growing bags.



Remove the plastic bag before planting.

Place the seedling upright in the hole; do not plant at an angle.

Firmly press soil with your feet.

Fertilizing

Using Basal application, follow the amount of fertilizer needed during planting:

Unit	Complete Fertilizer (14-14-14)
grams/tree	75
kgs/ha	124

Weeding

Weeds compete for both nutrients and water, so it is essential to keep the area under the canopy of the trees, weed-free.

Weeding should be done at least three to four times per year, especially in the wet season.



Mulching

To maintain soil moisture and control weeds, coffee plants should be mulched with rice straw or other appropriate material to a depth of 2 to 3 inches (5 to 8 cm) especially at the end of the wet season.



Coffee Management

Management of Established Plantation for Sustainability and Food Safety

- Weeding and removal of vertical sprouts
- Fertilization
- Pest and disease monitoring control
- Harvesting
- Maintenance Pruning
- Rejuvenation
- Rehabilitation

Weeding

Regular weeding should be done to avoid competition on nutrient uptake and to avoid incidence of pest and diseases.



Removal of Vertical Sprouts/Desuckering

Remove vertical sprouts that grows on the main trunk regularly, these absorbs more water and nutrients than the lateral branches.



Fertilization

Agricultural inputs (water, fertilizer, agricultural chemicals, organic inputs, and the like) should not contain microbial or chemical contaminants (e.g. heavy metals such as cadmium, mercury, lead and nickel).

Fertilizer is any material or mixture used to supply one or more of the essential plant nutrient elements.

The use of fertilizers particularly natural fertilizers or commercial organic fertilizers should be managed to limit its potential as source of microbial and chemical contamination.

If found to be contaminated with heavy metals (e.g. Cadmium, Mercury) or other chemicals at levels that may affect safety, these inputs should not be used.

Untreated solid nor liquid manure must not be used because pathogenic microorganisms can persist in soils for long periods of time.



In cases when the farm produces its own organic inputs (e.g. compost), proper treatment procedures should be adopted to reduce or eliminate the pathogens present in the raw material and to minimize the probability of contaminating the product. A record of treatment procedures, including the raw materials used should be kept.

The composting site should also consider the slope and its proximity to production areas in order to prevent cross contamination from run-off or leaching.

Composting area should be located at the lowest part of the production area.

Records of agricultural inputs should include origin and composition of fertilizers, date, frequency and location of application.



Human manure and urine are not allowed.

Soil analysis is highly recommended as basis of the application of fertilizer.

Use only registered agricultural chemicals and follow manufacturer's instructions for the intended purpose.

All organic and inorganic fertilizers are to be used appropriately.

Fertilizers must be clearly labeled and should be stored in a way that does not contaminate the environment.

Water Management

In rain-fed areas, plantings should be done during rainy season.

Irrigation is recommended when planting is to be done during dry months.

Water use should be managed to ensure sustainability.

Maintenance Pruning

Entails the elimination of certain secondary or tertiary of fruit bearing branches in order to maintain beneficial aeration and light throughout the coffee tree.



Single Stem Pruning

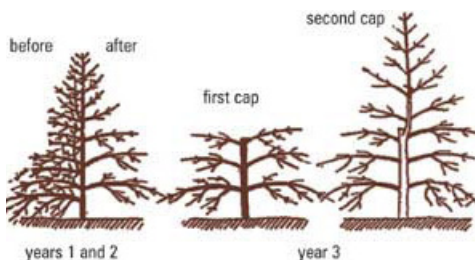
- YEAR 1: Desucker to maintain a single stem and avoid competition
- YEAR 2: Desucker to remove drooping primary branches that touch the ground. Cut back to nearest secondary branch
- YEAR 3: Trees should be allowed to crop in the third year.

Cap the main stem by cutting above a side primary shoot at about 5 ft (1.6 m) from the ground

Remove secondary branches within 8 inches (20 cm) of the main stem

Maintain a maximum number of wellspaced secondary branches on each primary branch

Remove all dead, weak and pest or disease damaged branches.



Multiple Stem Pruning

Bend down the first main stem and tie it to a stake. Let three to five vertical sprouts to develop.



Cut off the bent stem when the vertical sprouts grow up to 30cm and select only three (3) healthy sprouts to grow as the main stems.



Spread the new three (3) main stems using a bamboo expander, this will give even distribution of sunlight to the trees.



Rejuvenation

Cutting of vertical stems of old trees should be done to induce growth of new sprouts . The ideal age of tree to be rejuvenated normally ranges 10 to 30 years depending on the tree vigour and yield pattern.

Rejuvenation brings back 100% of the coffee green bean yield and reduces 50% of labor cost.

Two rejuvenation methods:

- Side Pruning
- Full Stumping

Side Pruning

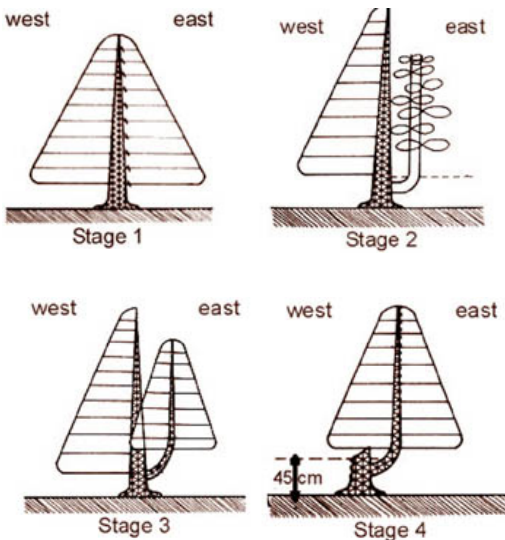
Involves removing one side of the tree, training new sucker and then removing the other side of tree two years later.

This is recommended for all growers, as only 50% of the crop is lost for the two-year period.

Two years before stumping, remove all branches on the eastern side of the tree after harvesting. Select a new sucker approximately 12 to 18 inches (30-45 cm) from the ground, and train the shoot until bearing a crop.

Two years later, stump the older stem above the new stem. Cut a 45 degree angle. Do not cut straight.

Stages of Side Pruning



Full Stumping

Cutting back the tree to knee height – about 12 inches (30 cm) from the ground level, and to develop a new stem from the stump.



Rehabilitation

Involves weeding, proper fertilization desuckering, pruning, and proper management of pest and diseases to develop a new productive tree.



IV. Harvesting Operations

Harvesting

The removal of offee fruit from the branch, operation and methods are conducted in consideration on possible sources of contamination.

Berries are ready for harvest 8-10 months after flowering.

Four Basic Harvesting Systems

- > Single Pass Stripping
 - remove all berries at 1 time
- > Multi-pass Stripping
 - remove branches with ripe berries
- > Selective Picking (Priming)
 - only ripe berries are harvested
- > Mechanical Harvesting
 - use of combine harvester

Selective picking (priming) of ripe cherries is highly recommended. It is important to avoid the inclusion of the peduncle during harvesting in order not to destroy the coffee clusters in the branches.

It is important to pick only red cherries. Green, dried, and overripe cherries lead to different quality defects.

Selective picking is vital not only for good quality coffee but also for better prices and for increased yields.





Recommended Practices

- > Ripe cherries should be placed in clean harvesting containers prior to selection or segregation.
- > Harvested cherries and containers should not be in direct contact with the ground.
- > Regular washing of hands especially when coming from the toilet during harvesting.
- > Newly harvested cherries should not be mixed with any fermented part of the harvested cherries from the previous day as this will contaminate the cherries and result in deterioration of the entire batch.
- > Containers used for harvesting should be made from non-toxic materials such as plastic container. They should be designed and constructed to ensure that they can be cleaned, disinfected and maintained to avoid the contamination.

- > Harvested cherries that are heavily bruised, damaged, diseased, or overripe should be segregated. Those that cannot be made safe by further processing should be disposed of properly to avoid contamination.
- > Harvesting containers should only be used to contain harvested produce. If these are used for other purposes, these must be cleaned and disinfected as necessary prior to use.
- > Containers of agrochemicals shall not be used as harvesting container.

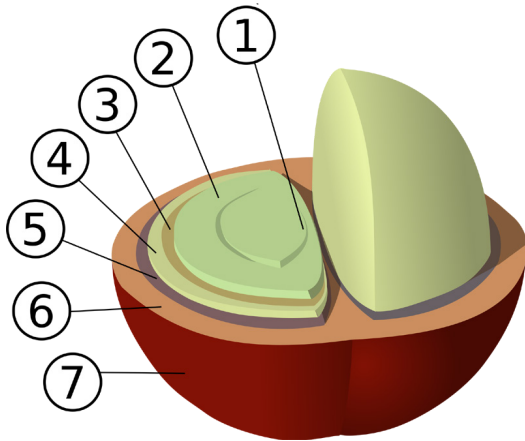


V. | Coffee Processing

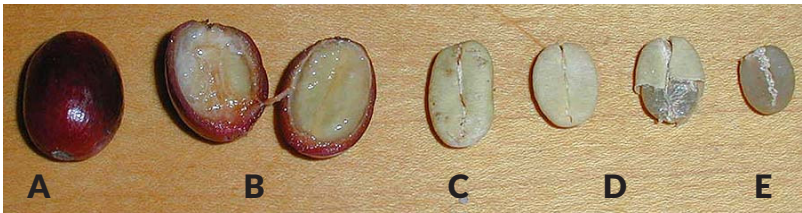
Coffee Processing

method of converting the raw fruit (cherry or berry) into the commodity brewed coffee.

Structure of coffee beans



- 1 Center Cut
- 2 Bean (endosperm)
- 3 Silver Skin (testa, epidermis)
- 4 Parchment (hull, endoscarp)
- 5 Pectin Layer (mucilage)
- 6 Pulp (mesocarp)
- 7 Outer Skin (pericarp, exocarp)



- A - Ripe coffee berry
- B - Cross section of a coffee berry showing the mucilage
- C - Parchment coffee
- D - Cross section of parchment coffee showing the parchment skin and silver skin
- E - Green coffee bean

Factors Affecting Coffee Quality

- Quality of planting materials used
- Harvesting method
 - Harvesting green berries with red ones will result in low quality green coffee
- Postharvest treatment
 - Postharvest processes largely influence coffee flavor and quality

Postharvest Handling

Dry Method

- Oldest/simplest/cheapest method
- Laid out on the ground (cemented floor or concrete pavement)
- Stir or rake regularly (2-3 times a day)
- Takes place anywhere from 10 days to 3 weeks
- “Dry-processed”, “unwashed”, or “natural coffee”

Wet Method

- Involves more capital, more water and more care
- The pulp is removed from the berries within 12-24 hours after harvesting
- Berries are soaked in a large tank of water to separate unwanted berries
- 18-24 hours fermentation
- The coffee is thoroughly wash with clean water to remove the remaining parchment
- “wet-processed”, “washed”, or “mild coffee”

Semi-dry Method

- A hybrid process which is used in few countries
- The outer skin is removed as in wet process, but the sticky fruit residue (mucilage) is allowed to dry on the bean
- “wet-hulled”, “semi-washed coffee”

Drying

- Start within 12 hours after harvest to ensure high quality green coffee

Over-dried

becomes brittle and produce too many broken during hulling

Too moist

prone to rapid deterioration caused by the attack of microorganisms

Fully-dried

when the beans produce sound whenever being shaken by hands

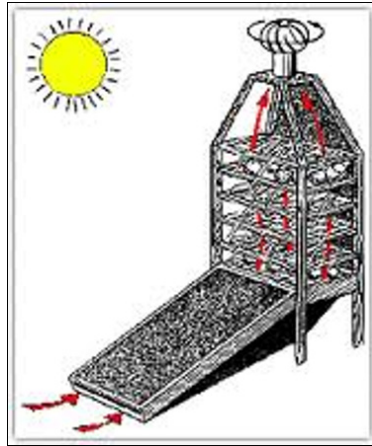
Drying Systems

Sun Drying

- Coffee cherries are laid out on cemented floor
- The operation takes place from 10 days to 3 weeks
- The moisture is reduced to 12-14%
- 2-3 weeks for Arabica and Robusta
- 3 weeks for Excelsa and Liberica

Solar Drying

- Coffee cherries are placed in trays of solar drier
- Layer should be no deeper than one inch



Artificial Drying

- Most important during wet season
- Heat should be introduced at a low temperature at first and gradually increased (starting temperature of 35 °C and gradually raise it to 60 °C)

Case-hardening

- outer surface of the bean dries too fast causing a hard shell while the interior of the beans is still soft (beans cannot be milled, and if possible, spoilage would likely occur).

Hulling/Milling

Hulling

removal of the outer coverings of the bean

- Crumbly parchment skin** - wet-processed
- Dried mucilage** - semi-dry processed
- Dried fruit covering** - dry-processed

Polishing

(optional) used to remove any silver skin and parchment like husk



Cleaning and Sorting

Selection or taking out of undesirable foreign materials or broken pieces of coffee beans



Sorting by size and density

- Use of machine that sort the coffee, all the while removing sticks, stones and other foreign materials
- Others shake the beans through a series of sieves, sorting them by size
- To ensure uniformity of roast

Sorting by color

- Separation of defective beans from sound beans on the basis of color
- Simplest possible way – by hand
- Can also be done through the use of electronic sorter

Green Coffee Defects

Quality is one of the key factors that allows coffee to keep its position in the international market

Black beans

Description

- Brown to black beans
- Shrunken
- Wrinkled
- Flat faced
- Crack too opened



Causes

- Lack of water during development of cherries
- Over fermentation
- Overripe cherries picked from the ground

Moldy beans

Description

- Coffee beans infested by mold presenting yellowish or reddish spores



Causes

- Over fermentation
- Long interruptions during drying process
- Storage of beans with high moisture content

Sour or Partial Sour beans

Description

- Light brown to dark brown beans
- Crack free of tegument
- Silver skin can be reddishbrown



Causes

- Delay in between coffee picking and depulping
- Overextended fermentation process
- Use of dirty water
- Storage of beans with high moisture content

Crystallized beans

Description

- Coffee beans grayish and bluish in color, fragile, brittle



Cause

- Beans dried mechanically at temperatures above 60° Celsius, faulty in drying process

Faded or Streaked beans

Description

- Stained bean, showing an irregular greenish color



Cause

- Usually due to uneven drying or re-wetting after drying

Faded-Oldish beans

Description

- Coffee beans with alterations in the normal color, white coffee beans, cream, yellow to brown



Causes

- Long time in storage
- Storage in bad conditions (high temperature and humidity)
- 25-30 C and 50-60% would be ideal

Faded-Amber or Buttery beans

Description

- Yellow, semi-transparent beans



Cause

- Iron deficiency in the soil

Faded-Overdried beans

Description

- Amber to yellow beans



Cause

- Excessive time in the dryer, or high temperature during drying

Faded-Cut or Nipped beans

Description

- Cut or nipped bean and rusty



Causes

- Bean broken by the depulping machine during wet process
- Cherries harvested prior to maturity

Insect-Damaged beans

Description

- Beans with small holes caused by insects.



Causes

- Attack on cherries by *Hypothenemus haempei* (coffee berry borer)
- Attack by *Araecerus Fasciculatus* during storage, due to inadequate storage conditions

Shrunk beans

Description

- Wrinkled bean



Causes

- Beans affected by drought conditions
- Lack of fertilization

Immature beans

Description

- Green or light grey beans
- Beans tend to have a very adherent silver skin and size smaller than normal
- Whither surface
- Smaller size than normal
- In this group low density beans are included



Causes

- Beans picked before ripeness
- Lack of fertilizer
- Beans affected by drought and rust disease

Pressed or Crushed beans

Description

- Bruised beans with partial fractures



Causes

- Bruised beans during depulping, drying, and milling process
- Milling parchment with high moisture

Wet or Undried beans

Description

- Beans with dark green color and soft texture



Causes

- Bean with high humidity
- Lack or incomplete drying

Grading

Process of categorizing coffee beans on the basis of criteria such as size of beans and the number of defects or imperfection in a given sample of green coffee beans.

SCAA Coffee Beans Classification

- Specialty Coffee Association of America
- Superior over other systems because it better accounts for the relationship between the defective coffee beans and cup quality
- 300 grams of properly hulled coffee beans should be sorted

SCAA Coffee Grades

- **Grade 1: Specialty Grade Green Coffee**
 - No more than five full defects in 300 grams
- **Grade 2: Premium Coffee Grade**
 - No more than eight full defects in 300 grams
- **Grade 3: Exchange Coffee Grade**
 - 9-23 full defects in 300 grams
- **Grade 4: Below Standard Coffee Grade**
 - 24-86 full defects in 300 grams
- **Grade 5: Off Grade Coffee**
 - More than 86 full defects in 300 grams

In the Philippines, Robusta green beans being traded are 1,2,3, and 4 and have percentage defects of 10,15, 25 and 40, respectively.

Good Quality Coffee Beans

- Uniform in sizes and shapes
- Free from molds, foreign bodies, insects and other imperfections
- Hard and not spongy; glossy and smooth
- The color exhibits a greenish to deep green and fresh background hue
- Free from undesirable or rancid odor

Roasting

- chemical process by which aromatics, acids, and other flavor components are either created, balanced, or altered in a way that should augment the flavor, acidity, aftertaste and body of the coffee
- Done using roaster
- Length of time and temperature are the most crucial factors (200-225 C temperature & 15-20 min time)
- The beans lose a good amount of moisture (20-22%) and about 10-15% of the bean's caffeine is lost
- When the desired roast has been reached, the beans are then quickly dumped into a cooling drum with mixing arms



Types of Roast

- Light Roast
 - more acidic taste
- Dark Roast
 - less acid, slightly less caffeine and shorter shelf life due to the amount of oils on the surface. More bitter than medium roast



LIGHT

MEDIUM

DARK

Phenols and Antioxidants

Phenols

compounds that contribute to quality and nutritional value in terms of modifying color, taste, aroma, and flavor and also in providing health beneficial effects.

Antioxidants

provide health benefits in preventing diseases (e.g. heart disease, cancer).

Antioxidants work by directly reacting with the free radical. It generously donates an electron to the free radicals.

Free radicals are atoms or group of atoms with odd (unpaired) number of electrons.

Blending

Process of mixing different varieties to improve the coffee's sensory attributes (acidity, aroma, body, flavor, aftertaste)

Blending Before Roasting (BBR)

Used for the consistency of the product. Produce a blend that has a unique flavor.

Reasons for Blending

- **Blending for costs**
 - Reduce the cost of coffee blend
- **Blending for consistency**
 - Original source is not always uniform as a result of variations in supply, price, quality and time and place of delivery
- **Blending to create branding**
 - To create coffee flavors that are unique

Grinding

Exposes the beans' cell wall and prepares the beans to release their flavor during brewing.

Coffee beans must be ground right before brewing because ground coffee loses its aroma and taste very quickly.

Degrees of Grind

- **Course** - very distinct particles of coffee, much like heavy-grained salt
- **Medium** - gritty, like coarse sand
- **Fine** - smooth to the touch a little finer than granular salt
- **Extra Fine** - finer than sugar but not quite powder
- **Turkish** - finest grind, looks like flour and feels like powder

Grinding Chart

Coffee-Brewing Method	Degree of Grind
Drip coffee makers (flat bottomed filters)	Medium
Drip coffee makers (cone filters)	Fine
Plunger pot / French press	Coarse
Percolator	Coarse
Espresso machines (pump or steam)	Extra fine
Espresso moka pot	Fine
Vacuum coffee pot	Coarse
Ibrik	Turkish

Brewing

Much of an art as it is a science.

The concept is to maximize the extraction of flavors of the roasted beans while minimizing the extraction of undesirable flavors and components.

Methods of Brewing Coffee



Drip Method

- Most common method which uses automatic or manual drip coffee makers.
- Water is heated within the electronic drip machine to almost boiling.



French Press

- Coffee grounds are added directly to a pot of hot water, and after they “steep”, you press down a plunger inside the pot to strain the grounds to the bottom of the pot.



Percolator

- The desired quantity of water is poured into the water chamber of the pot and the desired amount of a fairly coarse-ground coffee is placed in the top chamber



Espresso

- Hot water is injected through the coffee grounds directly into the cup, either via steam pressure—using a pump—or by piston. The grind and tamp pressure need to be combined in such a way that brew time is 20 to 25 seconds.



Ibrik

- An ibrik is a small metal cup on the end of a fairly long handle.
- Pulverized coffee—with a texture resembling talcum powder—is placed into an ibrik along with water. Sugar can be added at this time. This mixture should be brought to a light boil three times, removing the ibrik from the flame quickly as foam begins to rise.

Tasting/Cupping

Coffee Cupping

The practice of observing the tastes and aromas of brewed coffee. It is a professional practice but can be done informally by anyone.

Branding and Packaging

Branding

is a term that is used basically to describe the name, design and description of the product.

In a basic sense it means that branding tries to differentiate one company's product from another. Especially, the major aim of the branding technique is to show the difference of a company's product from its competitors.

Invent a brand that is instantly and easily recognizable and perceived positively.

It consists of various components like style, color, design; so that the company's product will stand out in the market against the competitors.

Marketers communicate with the customers through logos, slogans, and tag lines.

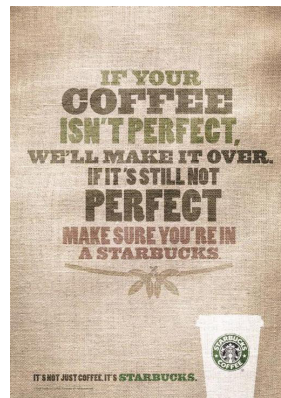
Slogans are the most effective branding technique.

Packaging

A marketing tool that is used to replicate the product's brand. A company usually uses the packaging technique to sell its products within a competitive market.

Basically, colors, font, descriptions and logos are the things that are looked-out in packaging.

Sample brands and slogans





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