



Agro-Up

GOOD AGRICULTURAL PRACTICES (GAP) FOR COCOA FARMERS



Lessons in: Good Agricultural Practices for Cocoa Farmers Training Manual

Improve your **cocoa quality** and **production**



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Why Use Good Agricultural Practices?

What is It?

- GAP are the **best farming practices** to produce the most volume, and highest quality cocoa for the **long-term** health of your farm

Why do it?

- You will make **more money** through **more cocoa** and **higher quality** cocoa grown on your farm
- You can do this without having to buy expensive chemicals!

How do you do it?

- Follow the instructions laid out in this manual
- Ask your local cooperative, tree crop officer, lead farmer or VC for advice!
- Attend local trainings!

When do you do it?

- You should be doing GAP on your cocoa farm all year long!
- We will explain how in this training manual!



Each lesson in this book has a **calendar**. Months shaded **GREEN** are when the best practices should be done

CALENDAR

Jan	Feb	Mar	Apr
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Lesson # 1 – Underbrushing

What is It?

- Keeping your farm clean by cutting grass, weeds, and over-growth from under the cocoa tree and on the rest of the cocoa farm



Why do it?

- **You will have more cocoa!** Grass and weeds steal water and the rich soil from the cocoa trees
- Weeds encourage pests and black pod disease!



How do you do it?

- Slash the grass and weeds with a cutlass
- Be careful not to damage the cocoa trees!
- **DO NOT** slash all the way to the dirt, leave some grass or rain will spoil the soil



When do you do it?

- Before the harvest
- Start of the dry season
- Before pruning
- When weeds are getting tall

CALENDAR

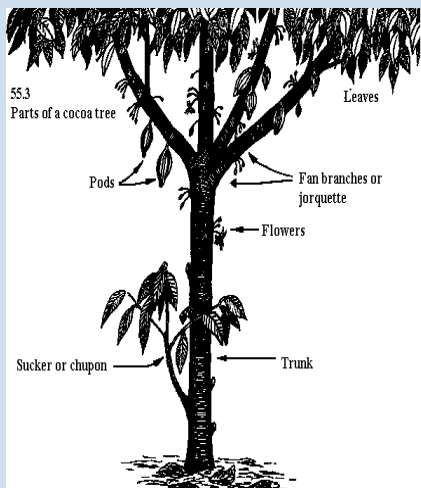
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Lesson # 2 – Pruning Cocoa Trees

What is It?

- Cutting off branches that are dying or are making the tree produce less cocoa; cutting the number of unnecessary branches.



Why do it?

- You control the amount of light reaching the cocoa
- It lets air move through the trees to stop back pod disease
- It makes trees produce **more cocoa**



How do you do it?

- Cut low hanging branches
- Cut branches within 60cm from jorquette
- Cut out shiny new branches (chupons)
- Tree should cut to be 3.5 meters tall



Secateur
(Pruning shears)

Cutlass

Pruning Saw

When do you do it?

- **Heavy pruning (large branches)** is done in the dry season
- **Maintenance pruning** (Proper shade, dead branches, and chupons) is done all year long

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Lesson # 3 – Shade Management

What is It?

- Making sure there is the right amount of light going to the cocoa tree



Why do it?

- The proper light reduces the amount of black pod disease
- Too much light encourages pests
- Heavy shade means low yields and black pods



How do you do it?

- There should be **50% light and 50% shade**
- Prune trees and remove unwanted trees
- There should be 7 shade trees per acre



When do you do it?

- Shade management is part of **maintenance pruning** and should be done all year long

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Lesson # 4 – Black Pod Disease Control

What is It?

- Removing black pods from the farm as soon as you can
- Black pods come from wetness, rain, and heavy shade on the farm, and make cocoa pods black and ugly



Why do it?

- Black pods kill your cocoa production
- Black pod spreads quickly and can spoil the entire farm
- If you remove black pods **you will have a better yield**



How do you do it?

- Proper shade management
- Proper pruning
- Undebrushing is very important
- Remove black pods in a basket **as soon as you see them on your farm**
- Bury them together at least 3 meters from the cocoa farm
- **DO NOT** mix black pods with healthy pods!!

When do you do it?

- You must always be looking for black pods
- Remove black pods **as soon as you see them!**
- Black pods spread quickly to healthy pods, so you must always be looking!

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Lesson # 5 – Moss and Mistletoe

What is It?

- **Moss:** Small green plants that can grow on the cocoa trees
- **Mistletoe:** Are plants that grow on cocoa trees and depend on them to live, it has red flowers and berries



Why do it?

- Moss reduces the amount of cocoa that a tree produces
- Moss stops flowers growing which means less pods
- Mistletoe means less cocoa from your tree and weaker trees



How do you do it?

- Remove moss by brushing it off with a hard-bristled broom
- Use a cutlass or pruning saw to cut out mistletoe



When do you do it?

- Moss should be removed whenever you see it on your farm
- Mistletoe should be removed in the flowering season when you can see it on the plants

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BONUS LESSON – Other Cocoa Pests

Name of Pest	What is it?	Why is it bad?	How to treat it	Picture:
Cocoa Swollen Shoot Disease	A virus that causes shoots to swell, and causes white patches on veins of leaves	It can make branches too big and eventually can kill the tree	Cut off affected shoots. Remove affected bark that looks old and dry. Cut down dead trees.	
Which's Broom	A fungus that develops in wet places, it has a black and white colour on cocoa pods	Attacks the trees and cocoa pods	Shade management and underbrushing. If seen remove and bury in a pit 3m from the farm	
Thread Disease	A fungus that can be on the stem and leaves of the cocoa tree and is green	It causes leaves of the cocoa tree to turn white and to die	Use a stiff broom to scrape it from the tree	
Stem Borers	Caterpillars which bore into the stem of the trees	They steal nutrients from the cocoa and make trees weak	Shade management: Stem borers hate the heat and sun will kill them	
Pod-Borers	Insects that suck the sugar out of the cocoa pods	They make holes in cocoa pods and infect the beans	Shade management Wrap the affected pods in plastic to kill them	
Mirids	Insects that suck the sugar out of cocoa pods and leave black spots behind	Affected pods are hollow and have no weight, and the beans are no good	Shade management with enough sunlight	
Red Ants	Ants that are red in colour. They fight other pests on the farm	Red ants are GOOD! They should be encouraged on the farm! 8	Encourage red ants to fight other pests.	

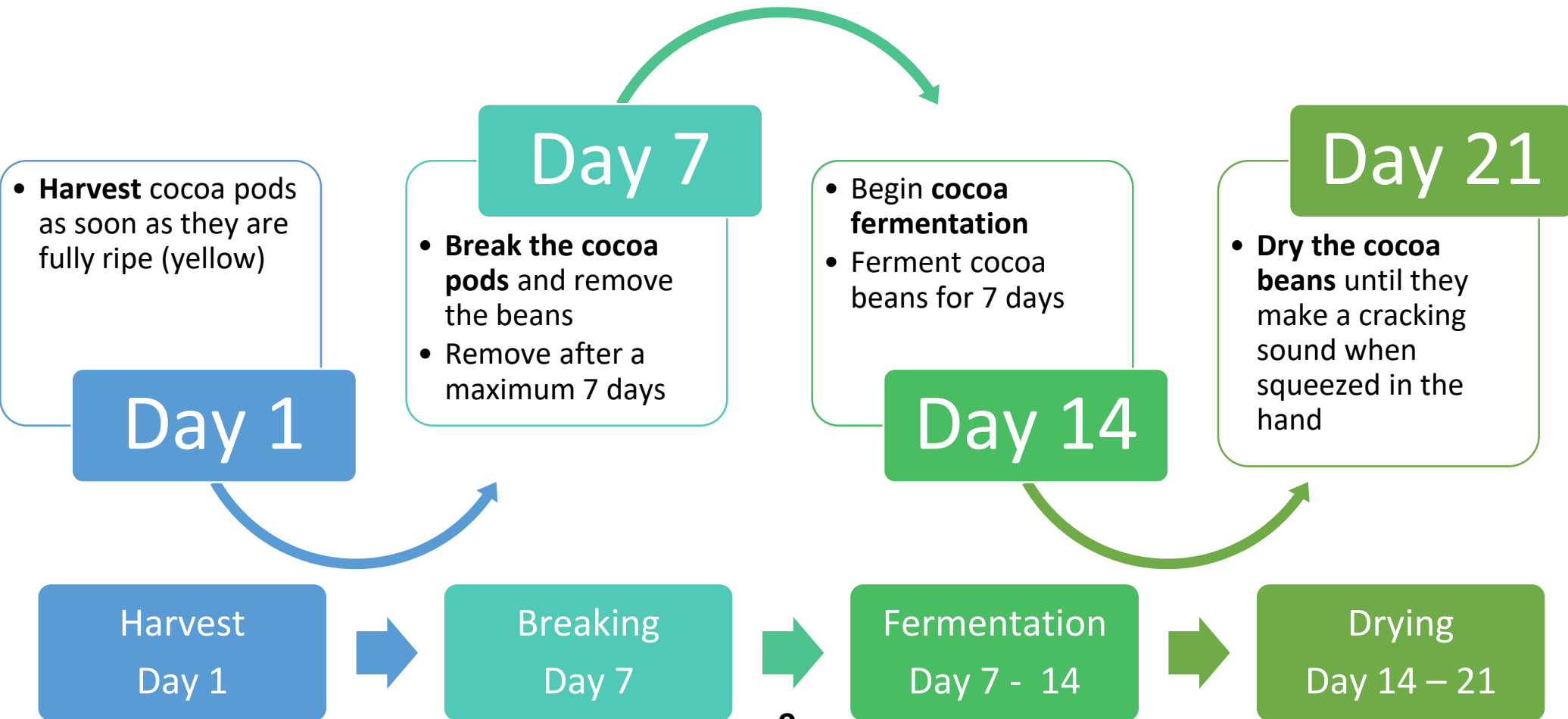


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COCOA HARVEST TIMELINE:





Lesson # 6 – Cocoa Harvest

What is It?

- Harvesting cocoa is the removal of cocoa pods from the cocoa trees once the cocoa pods are ripe

Why do it?

- Harvesting at the right time improves the quality of your cocoa
- Harvesting unripe pods gives bad fermentation
- Harvesting overripe pods is bad because seeds start to grow

How do you do it?

- Only harvest pods that are **completely bright yellow**
- Make a clean cut with a cutlass or knife to remove the pods, be careful not to damage flowers
- **DO NOT** hand-pull pods

When do you do it?

- Harvest frequently during the cocoa season, as pods become ripe (yellow!)



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Lesson # 7 – Breaking the Pods

What is It?

- Breaking the pods is the act of breaking open the cocoa pods so you can remove the cocoa beans



Why do it?

- Breaking pods in the right way at the right time means you will have good quality cocoa
- You will get more money for good quality cocoa



How do you do it?

- Break pods with a stick, stone, or a blunt object
- **Do not** break open pods with a cutlass or knife as it will damage the beans
- Remove beans by hand
- Discard pods across the farm, they are good fertilizer and will help trees grow



When do you do it?

- Pods should be broken open **no later than 7 days after harvesting**
- **DO NOT** break cocoa pods when it is raining

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Lesson # 8 – Cocoa Fermentation

What is It?

- Fermentation is helping the cocoa to be heated so that it kills the inner part of the seed
- **Good fermentation makes good quality cocoa**

Why do it?

- Fermenting cocoa stops beans from germinating
- Well-fermented cocoa gets a **better price!**
- Fermented cocoa produces a fine flavour
- Fermentation makes good brown beans

How do you do it?

- There are three methods
 - **Box Method**
 - **Basket Method**
 - **Heap Method**
- They are described on the next page

When do you do it?

- It should be done **immediately after breaking the pods**
- Fermentation is finished after **7 days**



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BONUS LESSON – Fermentation Methods

Box Method (BEST)

1. Make 2 boxes out of wood, You don't need a top for the box, but it should be with an open top and holes in the bottom
2. Make sure the box is on a table
3. Put the beans inside the box and fill it to the top – don't leave any space
4. Cover the top of the beans with banana leaves or fan leaves
5. After 2 days, mix the beans and cover again with banana leaves. When mixing, do it fast to keep the heat inside.
 - Use two boxes to help with the mixing.
 - Lift the box with the beans up and place an empty box under, with fresh banana leaves all around it
 - When mixing, open the side of the box with the cocoa beans inside
 - Move the cocoa from one box to another and mix while you're doing it
6. After another 2 days pass, mix the beans and cover with banana leaves
7. Fermentation is finished after 7 days

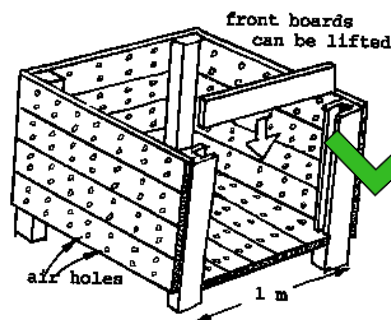
Basket Method (SECOND BEST)

1. Find a basket and put banana leaves around and inside it
2. Put the basket up high (on a table) to let the water from the cocoa come out
3. Put cocoa beans in the basket
4. Cover the basket with banana leaves to keep the heat inside
5. After 2 days, mix the beans and cover again with banana leaves. When mixing, do it fast to keep the heat inside.
6. After another 2 days pass, mix the beans and cover against with banana leaves
7. Fermentation is finished after 7 days

Heap Method (LEAST RECOMMENDED)

1. Spread salt on the floor to repel ants
2. Arrange pieces of wood on the floor covered with banana leaves.
3. Heap the wet beans on into a pile 60-90cm high.
4. Cover the heap with banana leaves to retain the heat, holding them down with pieces of wood.
5. Use a wooden spade to mix the cocoa after 2 days
6. Mix again after another 2 days
7. Mixing should be done quickly to minimize heat loss
8. Fermentation is complete after 7 days.

55.21 Fermenting box





Lesson # 9 – Cocoa Drying

What is It?

- Heating of the cocoa beans under the sun to get rid of moisture in the beans

Why do it?

- To make sure mould doesn't grow on the cocoa beans
- To keep the beans looking brown
- To get a **better price** for your cocoa

How do you do it?

- Spread the beans out
- Use a solar dryer or drying table (floor only if you need to)
- Turn the beans every 2 hours
- Do not dry near diesel, gasoline, or smelly objects
- **Do not** dry on roofing zinc!

When do you do it?

- Immediately after fermenting the cocoa beans is finished
- Cocoa should be dried for 7-10 days or when the cocoa makes a cracking sound in your hand when squeezed



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Lesson # 9 – Drying in a Solar Dryer

What is It?

- Solar Dryers are a structure covered in plastic with raised tables inside for drying cocoa

Why do it?

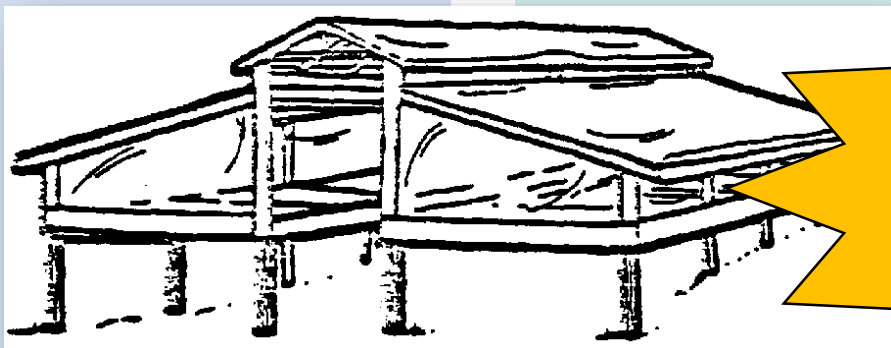
- It means less time needed to dry cocoa
- Keeps the beans safe from rain
- Fast drying prevents mould
- Keeps the attractive brown colour

How do you do it?

- Speak to your village coordinator or cooperative representative about building a solar dryer
- Lay out the beans
- They will be dry in 3-4 days

When do you do it?

- Immediately after fermenting the cocoa beans is finished



Solar dryers can also be used for drying fruit and vegetables when not drying cocoa

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Lesson # 10 – Basic Cocoa Grading

What is It?

- The process of making sure that you are **producing cocoa beans of high quality**

Why do it?

- You get a **better price** for higher quality cocoa
- You will get a penalty on your cocoa price if you have too many defects

How do you do it?

- Observe the cocoa as it is being dried and fermented
- Cut some cocoa beans open and consult the picture

When do you do it?

- Cocoa should be graded during and after fermentation, during drying, and before the cocoa is sold

- **Remove:**
- Foreign Matter
- Flat Beans
- Slaty Beans
- Insect-Damaged Beans
- Mouldy Beans
- Germinated Beans

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Well fermented



Under fermented

Photo credit: Martin Gilmour



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BONUS LESSON – Cocoa Grading

GRADE 1



Bean Count	Moisture	Mold
100	7%	1%

GRADE 2



Bean Count	Moisture	Mold
105	8%	6%

Produce Only
Grade 1 Cocoa!

GRADE 3 (Subgrade)



Bean Count	Moisture	Mold
120	8%	15%



Lesson # 11 – Cocoa Storage

What is It?

- Placement of well-fermented, dried, and graded cocoa in a safe, dry and clean location awaiting transport to the warehouse

Why do it?

- There will be less mould
- Less risk of defects
- Less insect damage
- The beans will remain **high-quality**
- Cocoa is sensitive and absorbs odors and chemicals; proper storage avoids this



How do you do it?

- Store in clean new jute bags or clean new collection bags
- Place cocoa in stacks on wood, **NOT** on the ground
- **DO NOT** store near grain that may be infested
- Lock the room from theft!



When do you do it?

- Store the cocoa after proper drying and grading!
- Cocoa should be stored at night as it is being dried
- Well-dried cocoa can be stored for several months if the cocoa store is set up properly

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Women in Cocoa

“Women trained in cocoa farming increases the quantity and quality of cocoa, meaning more money from cocoa sales and better welfare at home”

- **Women are important in cocoa farming!**
- Men and women are included in GAP training equally. GAP is for **everyone**.
- GAP is for all farmers: women and men **both** need to know GAP
- Women will always be **included** in training
- Women are leaders and teachers

Women trained in GAP increases quantity and quality of cocoa, meaning **more money from cocoa sales and better welfare at home!**





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Business Case for GAP



If you do GAP you will make more money!



In the first year of using GAP on your farm **you will produce 40% more cocoa.**

In the second year **you will produce even more!**

40% more cocoa means that if you are producing 70kg per acre now, if you use gap you will produce 100kg per acre!

This means you will make at least 8,000 more LD per acre!

Higher quality cocoa also makes you more money for you and your family

“8,000 more LD per acre for cocoa farmers households from 40% more cocoa production and quality because of GAP training for both men and women!”