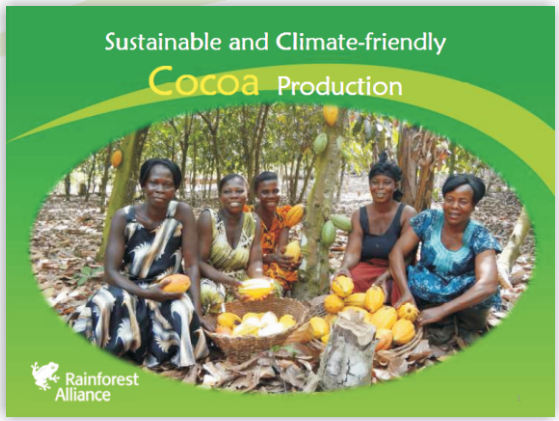
Rainforest Alliance

# Sustainable and Climate-friendly Cocoa production

## - Trainer's Guide -

# Introduction

This Trainer's Guide is created to facilitate the delivery of the farmer training, using the large-size Flipchart, "Sustainable and Climate-friendly Cocoa Production".




This Guide illustrates what to explain to the farmers and what exercise to conduct, for each page of the Flipchart.

The training can be conducted in various sessions, such as the Farmer Field School approach, whereby one topic is discussed at a time in a participatory manner.

The objectives of the training sessions are the following.

- ★ To create awareness of the farmers on the relation between climate change and cocoa farming
- ★ To encourage farmers to implement practices that mitigate and adapt to climate change
- ★ To encourage farmers to implement practices that make their cocoa farming more environmentally and socially sustainable
- ★ To prevent deforestation of the remaining forest, by teaching farmers the practices that help improve the productivity of their existing farms

Both the Trainer's Guide and the Flipchart are based on the Sustainable Agriculture Standard and the Climate Module of the SAN (Sustainable Agriculture Network). For the clarification of the details of the standard requirements, please refer to the original standard documents.

# Acknowledgement

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# Climate change and cocoa farming

The objective of this session is that the participants share their observations of climate change and its impacts on cocoa, and understand the basic mechanism of climate change. Start the training by asking the participants the following questions.

**Do you feel that the climate has been changing in the past years? If yes, what changes have you been experiencing?**

Farmers are likely to mention the changes, such as the delay of the start of the rainy season, the prolonged harmattan period and the shorter rainy season. Once they confirm that the climate has been changing in the past years, ask the following question.

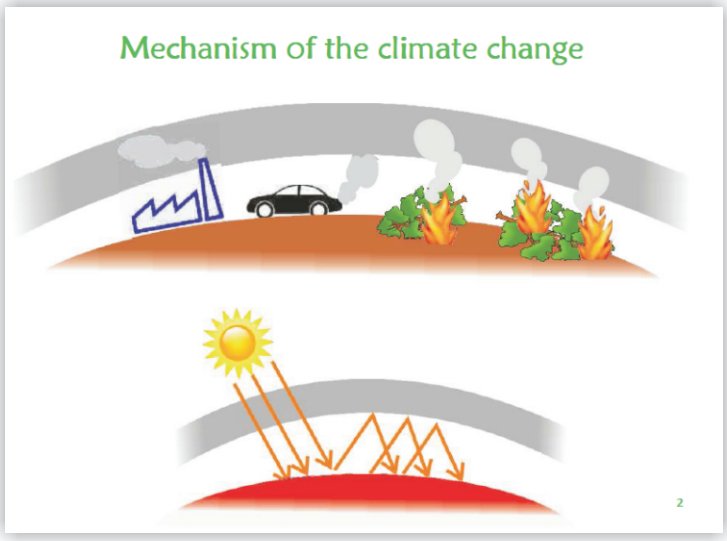
**Are these changing affecting your cocoa farm?**

They are likely to tell you that they have observed more flower abortion, more small pods dropping from the trees and bad development of pods, which are all resulting in decreased yield. Once they recognize the impacts of climate change on cocoa production, ask them the following question.

**What do you think are causing climate change?**

Farmers will tell you what they think are the causes, such as the industries polluting the environment, smoke from the cars, bush fire etc... Some farmers may mention “deforestation” or “clearing of land for farming”. When they finish telling you the answers, you can open the flipchart to start explaining the mechanism of the climate change.

***Flipchart - No.2***




Show the Flipchart No.2, and explain the following.

Industries, vehicles and slashing-and-burning have emitted a lot of gases, called greenhouse gases. Greenhouse gases include carbon dioxide, methane and nitrous oxide. These gasses, once emitted, go up in the air and cover the earth like a blanket. When there is a lot of green house gasses in the air, the heat from the sun is contained under this blanket of the gasses. As the earth gets more and more heated, the rainfall pattern changes and we start to experience unusual weather all around the world.

# Deforestation and cocoa productivity

The objective of this session is that the participants understand the linkage between climate change and cocoa farming. Expansion of cocoa farms has resulted in deforestation, which contributed to climate change. One way to stop or to mitigate the encroachment of cocoa farms is to increase the productivity of existing farms. Through this session, the participants should realize the importance of increasing productivity and learn the ways to increase productivity.

***Flipchart - No.3***


Show the Flipchart No.3, and ask the following questions.

**Is this happening, or has this ever happened in your community?**

The answer is likely to be “Yes”. Then continue to ask the following.

**Why did this happen, or is this happening?**

Farmers are likely to answer that people need to create more cocoa farms and that people need to plant more cocoa to sustain their lives. Then go on to ask the following question.

**Are there any ways to get more cocoa beans, without destroying more forest?**

Lead the discussion to make the farmers to think about the issue of productivity. It is possible to get more cocoa beans, if the farmers can increase the productivity of the existing farms. It would also save the labor and the cost of forest clearance. Ask the farmers the following question.

**What are the important practices to increase the productivity?**

As the participants point out any of the practices below, discuss in detail its importance and the correct way of implementing the practice. When possible, demonstrate it practically on the farm.

***Proper weed management***

Weedy farm would not be productive, as weeds would be competing with cocoa trees for the nutrients. Weed your farm regularly, but do not use prohibited herbicides that contain Paraquat or Atrazine. By weeding manually, you can maintain a certain level of vegetative cover over the ground, which is good for maintaining soil humidity and soil erosion control.

***Pruning***

Leaving unproductive branches on the trees would bring down the productivity, and could cause pests and diseases. Prune the chupons, dead branches, diseased branches, branches that are too high and branches that have grown too dense.

### *Good fertilization with organic and inorganic fertilizers*

Fertilization is important for the productivity, but be careful not to overapply chemical fertilizers. Overuse of chemical fertilizers turns the soil acidic, and the soil becomes not sustainable for cocoa production. Your production cost would also go up. The recommended dose by CRIG is 3 bags/ acre. Try to apply organic fertilizers as much as possible. Your empty cocoa pods are excellent source of organic fertilizer. You can compost them to make compost at your farm.

### *Pest and disease control*

Infestation of pests and diseases bring down the productivity. You should monitor your farm regularly to check any presence of pests and symptoms of diseases. As much as possible, mechanical or manual methods should be used for controlling pests. Pods that are infested by Black Pod Disease should be immediately removed from the trees and should be buried to prevent the disease from spreading. Chemical treatment should be the last resort.

### *Good shade management*

Shade trees are important to protect the cocoa trees from strong sunlight, but too much shade also causes the productivity to decrease. It is important to prune shade trees to regulate the level of shade. The recommended density of shade trees is 6 - 9 trees per acre (:15 - 22 trees per hectare).

### *Spacing*

Recommended spacing for cocoa is 3m X 3m. When the cocoa trees are planted too close, it creates competition and favorable condition for diseases, such as Black Pod Disease. If the cocoa trees are planted too close, some trees need to be removed. When there are some open spaces in the farm without cocoa trees, the open space becomes infested with weeds, and it also decreases the productivity. The open spaces need to be in-filled with cocoa trees or shade trees.

### *Rehabilitation and replanting of old unproductive trees*

If the trees are more than 30 years old and have become unproductive, you should consider replanting of old trees with new planting material. You can get seedlings of the hybrid variety from the Seed Production Unit of the Cocobod. If you establish your own nursery, follow the nursery manual of the Cocobod. Once the seedlings are available, the old trees should be gradually replace with the new ones.

### *Timely harvesting*

When you delay in harvesting, your cocoa gets infested by pests and diseases, which results in lower quality and productivity. Timely harvesting is very important for the productivity.

## *Handouts - No.1 & No.5*



The corresponding handouts for this training session is No.1 “Productivity” and No.5 “Integrated Pest Management”. As you finish the training, distribute the handouts to the farmers so that they can take them home and review the training content.

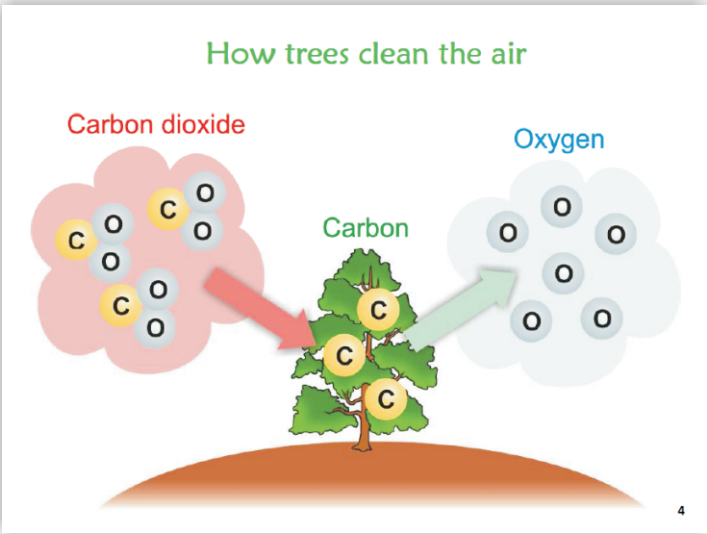
# Trees and climate change

In this session, the participants should learn the importance of trees for climate as well as for cocoa. Start the session by asking the following question to the participants.

**Why are trees important for us?**

They may mention different benefits, such as firewood, wood for furniture, shade for cocoa...etc. After the participants give their answers, refer to the fact that the trees have a function of cleaning the air and mitigating the climate change and show the Flipchart No.4.

## *Flipchart - No.4*




Explain the diagram on the Flipchart No.4.
As trees absorbs Carbon dioxide, Carbon is accumulated within the trees, and Oxygen is released to the air.

This process is the opposite from the respiration of human being, whereby we inhale Oxygen from the air and exhale Carbon dioxide to the air.

Carbon dioxide is a greenhouse gas, which contribute to the climate change. Trees have a function of reducing Carbon dioxide and increasing Oxygen in the air.

## *Flipchart - No.5*


Show Flipchart No.5 and ask the following questions.

**What do you see in this photo? Do you see any problem?**

Discuss the fact that the tree is suffering because of lack of shade, and explain the following:
There is a myth that cocoa is a “sun-loving tree”, but it is not true. In reality, cocoa cannot handle full sun. Without shade, cocoa trees get stressed due to extreme heat. When the weather pattern changes and there is a long dry period, some trees stop to produce due to stress.

Without shade trees, you may experience good productivity for some years, but trees get exhausted quickly. The productivity starts to go down drastically after 15 years.


Show Flipchart No.6 and ask the following questions.

**Why are shade trees important for cocoa? What are their benefits?**

After the farmers share their opinions on the benefits of shade trees, explain the following.

- Shade trees protect cocoa trees against sunlight and strong winds. They protect cocoa trees even under extreme weather conditions caused by climate change.
- With shade trees, your productivity remains good and stable for many years. With good farm maintenance, your cocoa trees can continue to produce well even after 50 or 60 years.
- Shade trees increase organic matter in the soil.
- Leguminous shade trees improve the soil fertility in a very special way. They fix nitrogen in the soil.
- Shade trees keep the soil moisture.
- Shade trees help control erosion in the farm.
- They provide habitat for wildlife.
- Some shade trees can give you extra income from fruits and timber.

Once the farmers recognize the importance of shade trees and are willing to plant them on their farms, ask the following question.

**How can you have more shade trees in your farm?**

Explain to them the two ways to have shade trees in your farm. One way is to protect the wild seedlings that grow naturally in the farm. This way, farmers will have trees in their farms without having to buy them. The other way is to create a nursery of shade trees and transplant the seedlings to a farm. This way a farmer can have the species that he/she wants.

Ask the participants:
**Which trees should be grown to become shade trees? Are there some trees that are good for the cocoa trees? Are there any trees that are bad for cocoa?**

The next page contains a list of trees that are beneficial for cocoa and those that are not desirable for cocoa. These lists includes all species that can be found in Ghana, so please carefully read the lists to find the species that are found in the area where you are conducting the training. Share the names of desirable trees and undesirable trees with the participants.

### *Trees that are good for cocoa*

| | | |
|---|---|---|
| Esakokoo | Sesemasa | Kusia |
| Edinam | Asoma | Efoobrodedwo/Utile |
| Utile | Kokrodua | Penkwa-akoa |
| Odoma/Nwamdua | Esia | Nyamedua |
| Okae | Dahuma | Kyen-kyen |
| Fruntum | Kakapenpen | Onyina |
| Kyapotoro | Wama | Edinam |
| Fotie | Pepediawuo | Penkwa/Sapele |
| Besebuo | Akuakuo-ninsuo | Utile |
| Kruba | Atoa | Odum |
| Dubini | Afena | Otie |
| Kaku | Ofram | Emire |
| Onwamdua | Prekese | Ofram |
| Odum/Iroko | Baku/Makore | Wawa |
| Odum-nua/Iroko | Brebretim | Pampena |
| Konkroma | Sesea | Awiemfosamina |
| Wonton | Avodire | Okoro |
| Nyankumabere | Apapaye | Nyamedua |
| Nyankumanini | Oprono/Mansonia | Esa |

### *Trees that are not good for cocoa*

| | | |
|---|---|---|
| Onyina | Odadee | Dwindwera |
| Watapuo | Akyewobiri | Kyankuma |
| Krabise | Gyapam | Odwuma |
| Osonkrobia | Nteteadupon | |
| Tenamfera | Kwakuobise | |

Ask the farmers:
**How many trees should be planted per acre? At what interval should they be planted?**

After hearing their answers, explain the following:
It is recommended to plant 6 - 9 trees per acre (15 - 22 trees per hectare). It is recommended to plant various native species. When possible, you can plant as many as 12 native species. By planting various species, it can prevent the spread of diseases and create more habitats for wildlife. Some trees will serve as timber in the future.

Ask the farmers;
**If you find that there is too much shade in some parts of your farm, should you cut down the shade trees?**

The answer should be “No”. Explain the following to the participants;
Cutting down shade trees is not a good solution. Once you cut them down and if you need some more shade again, you would have to re-plant new trees. If some shade trees are creating too much shade, adjust the shade level by pruning them. This allows you to better control the moisture level and prevent diseases.

Ask the participants:
**Where else can we plant more trees apart from the farm?**

Share with them the importance of tree planting in fallow lands, around the farm and near water sources. These areas can also be planted with trees.

## *Exercise*

Tell the participants that you need **two volunteers** and ask them to raise hands. Ask the first two persons who raised their hands to come to the front. To one person, tell him/her that he/she is going to play a role of a **farmer** who is in the middle of cutting down some trees on his/her farm, because the person believes that they are not good for cocoa. To the other person, tell him/her that he/she is going to play a role of a **trainer**, who happens to visit the farmer on that day. The trainer sees the farmer cutting down trees, and the trainer is going to advise the farmer on the importance of the trees and convince him not to cut them. Ask them to start acting right away.

After the role play, clap for the two actors. Then provide your comments on the role play, and supplement any information that the person who acted as a trainer did not mention during the role-play.

## *Handout - No.2*


The corresponding handout for this training session is No.2 “Shade trees”. As you finish the training, distribute the handout to the farmers so that they can take them home and review the training content.

# Habitats for widlife

Ask the participants the following question.

**Are there any wild animals that you, your parents or your grandparents used to see, and that are not seen any more?**

### *Flipchart - No.7*


After hearing their answers, show Flipchart No.7 and explain that deforestation has resulted in loss of habitats for wildlife.

Hunting has also caused the loss of wildlife and has endangered some species.

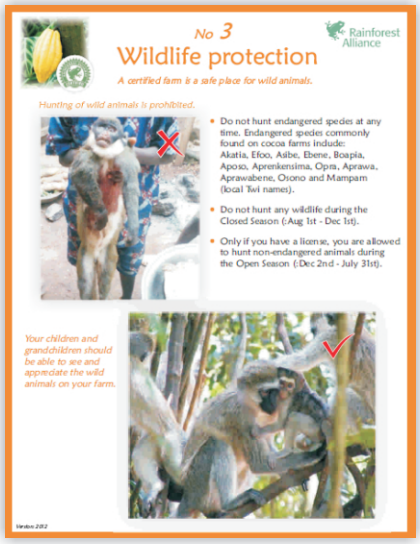
Ask the farmers:
**What can we do to protect wildlife? What can we do so that our children and grandchildren can also see them in the future?**

After hearing their answers, explain the following hunting regulations in Ghana and explain why.

- Certain species should never be hunted, because their number has become extremely small, and they are on their way of extinction. Such animals include Akatia, Efoo, Asibe, Ebene, Boapia, Aposo, Aprenkensima, Opra, Aprawabene, Aprawa, Osono and Mampam.
- In forest reserves and national parks, you must not hunt anytime.
- Closed Season is from the 1st of August to the 1st of December. During that period, animals are breeding. That is why you should not hunt any wild animal during that period.
- Open Season is from the 1st of December to the 1st of August. During that period, you may hunt certain non-endangered species of animals only for the purpose of feeding your family. You are not allowed to hunt wild animals to sell.

Explain the difference between wildlife and livestock;
You can eat domesticated animals, such as chickens, pigs, cows and grass cutters, which are reared for food purpose. They are considered to be livestock.

### *Handout - No.3*




The corresponding handout for this training session is No.3 “Wildlife protection“. As you finish the training, distribute the handout to the farmers so that they can take them home and review the training content.

# Waste management

Start the session by explaining the following problem.

After opening the pods, farmers normally scatter the open pods all around the farm or heap them at one place. When they are scattered, the pods with diseases are brought to all over the farm, causing the spread of the diseases. Although the pods are very rich in nutrients, the open pods that are scattered or heaped up will simply dry up, and are not decomposed to become part of the soil. Therefore, the nutrients are not brought back to the soil.

Ask the following question:
**What can we do to ensure that the open pods do not cause the spread of diseases, but rather contribute nutrients to the soil?**

***Flipchart - No.8***


After hearing their answers, show Flipchart No.8 and explain the process of composting. If there are open cocoa pods at the training site, conduct a field demonstration to show the process in a practical way.

1. Separate healthy cocoa pods and diseased cocoa pods after harvesting.
2. Bury diseased cocoa pods. Use only healthy cocoa pods for composting.
3. Mix the empty cocoa pods with other materials, if you have them. (animal waste, pruned branches, rice straw, organic waste from the house, etc.)
4. Pile the mixture and cover it completely with a big plastic or banana leaves.
5. Once in every two weeks, open the cover and mix the pile to facilitate the decomposition (Make sure the pile is hot and wet. If the pile gets dry, you should add a little water.)
6. Continue to mix them for 4 to 6 months until the pods are completely disintegrated, odorless and black-colored.
7. Apply the mixture around the cocoa trees.

## *Flipchart - No.9*


Show Flipchart No.9 and explain to them that plastic waste need to be collected at one place. They should not be scattered all over the farm and the house compound. They should not be burned, as burning will result in the emission of greenhouse gasses.

Group administrator should look for a company or a governmental agency that recycles plastics or incinerates them in a safe manner.

## *Exercise*

Tell the participants that you need **two volunteers** and ask them to raise hands. Ask the first two persons who raised their hands to come to the front. To one person, tell him/her that he/she is going to play a role of a **farmer** who is scattering all his waste (cocoa pods and plastics) all over his/her farm. To the other person, tell him/her that he/she is going to play a role of a **trainer**, who happens to visit the farmer on that day. The trainer sees the farmer scattering waste, and the trainer is going to advise the farmer on composting and plastic waste collection. Ask them to start acting right away.

After the role play, clap for the two actors. Then provide your comments on the role play, and supplement any information that the person who acted as a trainer did not mention during the role-play.

## *Handout - No.6*


No 6
Waste management and
How to make compost
Rainforest Alliance
A certified farm is clean and free of wastes
Organic wastes and cocoa husks : Compost them to obtain organic fertilizer.
Separate healthy pods and diseased pods.
Bury the husks of the diseased pods.
Cover the cocoa husks with plastic or banana leaves. Turn it once every 2 weeks.
Apply it above the entire root zone of the cocoa trees.
Continue 4-6 months until it becomes black, completely decomposed and odorless.
Plastic waste and empty chemical containers:
- Do not burn chemical containers or leave them on the farm.
- Rinse the containers three times, puncture them and send them to your Group Administrator.
- Your Group Administrator will store them properly, and look for suppliers, public or private agencies (such as EPA) that can recycle, incinerate or dispose these containers safely.

The corresponding handout for this training session is No.6 “Waste management and How to make compost”. As you finish the training, distribute the handout to the farmers so that they can take them home and review the training content.

# Water conservation

## *Flipchart - No.10*


Show the Flipchart No.10 and ask the following question.

**What problem do you see in this picture?**

The participants are likely to tell you that the farmer is spraying close to the stream, which is allowing the chemical drift to enter the stream and contaminate the water that people fetch to use at home.

Once they recognize the problem, ask the next question:

**What should the farmer do to protect the stream?**

After hearing their suggestions, explain the following steps to protect the stream.

1. If there are cocoa trees planted near the stream, first establish **no-spray zones** where you do not spray chemicals on cocoa trees near the stream. The no-spray zone should be at least 5m from the edge of the stream and 10m in the case of a river. The no-spray zone should be indicated by tying colored tape on the trees from which the zone starts. If you have workers, the workers should be trained that the trees beyond the tape should not be sprayed.
2. If the cocoa farm is still affecting the stream (e.g. soil erosion problem at the edge of the stream), you can gradually create **vegetative barriers** by planting indigenous trees and bushes between your farm and the stream. When the trees grow up, they can protect the stream and form a barrier between the stream and the cocoa farm.

## *Flipchart - No.11*


Show Flipchart No.11 to the participants and ask the following question.

**What is wrong with the picture on the left-top corner?**

After hearing their response, explain the following:
It is important to wash spray equipment away from water sources to prevent contamination of water. You must dig a soak pit away from water sources, and fill it with charcoal. Charcoal has a function of purifying water. The wastewater from washing your equipment should be discharged into the soak pit.

Tell the participants that the domestic wastewater can be treated in a similar way. They can dig a hole at a spot near the house, and fill the hole with palm kernels, sand and/or gravels. The wastewater can be poured into the soak pit.

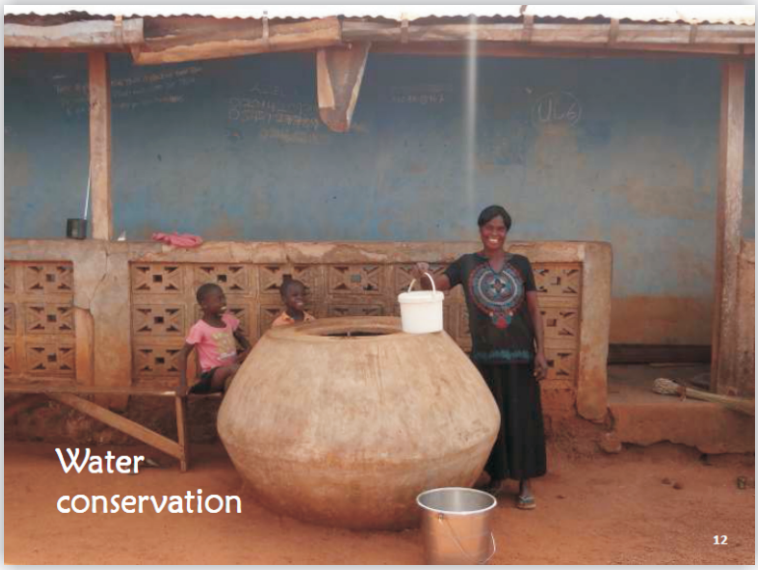
Explain to the participants the following:

People in various local communities have observed that the rainy season is getting shorter and its start is being delayed. They also observed that the dry season is getting longer and that there is a higher probability of drought. If there were to be drought, not only cocoa trees but also we ourselves will suffer from the shortage of water. Streams and well may dry up, and we may need to walk very far away to fetch water. It would consume a lot of our time and our labor. It is necessary for us to prepare for the shortage of water.

Ask the following question:
**What can we do to prepare ourselves for water shortage?**

After the participants share their ideas, show the Flipchart No.12.

***Flipchart - No.12***




As you show the Flipchart No.12, explain the following:

One of the ways to prepare ourselves for water shortage is to store rainwater. Rainwater is an important source of water, and is much cleaner than a water from stream that is used by people upstream. Rainwater falls just over your roof, whereas you need to travel all the way to where the streams and wells are to fetch water from these places.

Having a stock of rainwater at the house will save hours of work that would otherwise be spent for fetching water from streams or wells, and gives you security in the midst of water shortage. We should take advantage of the rainwater as much as possible.

You can make a structure to collect the rainwater that falls on the roof. Then put some container to store them. A basin or a barrel is a good starting point to store rainwater, but its capacity is limited. Depending on your financial capacity, you can buy a bigger plastic tank or build your own tank with cement.

## Exercise

### 1. Demonstration

As much as possible, try to set up an example of a soak pit at the training site in advance. During the training, show the soak pit to the participants and pour some wastewater into it. That way, the participants can see how a soak pit looks and how it works. Seeing is believing.

### 2. Role-play

Tell the participants that you need **two volunteers** and ask them to raise hands. Ask the first two persons who raised their hands to come to the front. To one person, tell him/her that he/she is going to play a role of a **farmer** who is washing his spraying equipment in a stream. To the other person, tell him/her that he/she is going to play a role of a **trainer**, who happens to visit the farmer on that day. The trainer sees the farmer washing his/her spraying equipment in a stream, and the trainer is going to advise the farmer on the importance of water conservation and convince him/her to create a soak pit.

After the role play, clap for the two actors. Then provide your comments on the role play, and supplement any information that the person who acted as a trainer did not mention during the role-play.

## Handouts - No.4 & No.7



The corresponding handouts for this training session is No.4 “Ecosystem conservation” and No.7 “Wastewater management”. As you finish the training, distribute the handouts to the farmers so that they can take them home and review the training content.

# Soil conservation

***Flipchart - No.13***


Show the Flipchart No.13 and ask the following question.

**Do you see any problem in this picture?**

After the participants share their observation, explain the following:

In this picture, the farmer has removed all the fallen leaves from the soil surface and has made the soil exposed to the air before applying chemical fertilizer. However, mulching by leaves has multiple benefits, and it should not be removed.

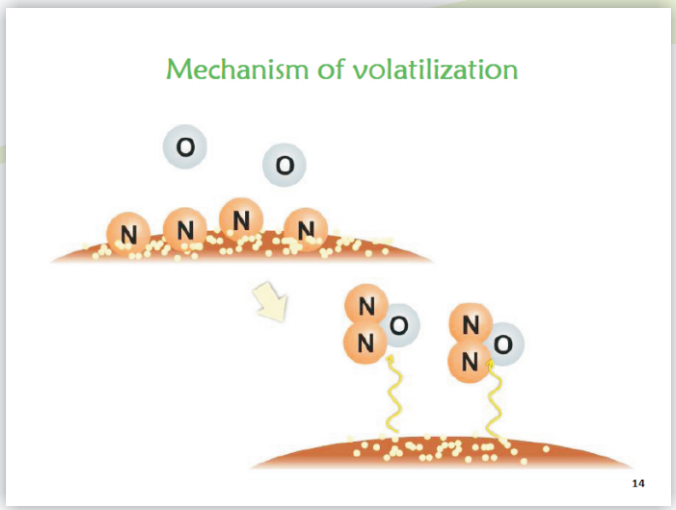
**1. Mulching by leaves keeps the soil moist.** Where there is no mulch, the soil becomes dry and hard. Where there is mulch, the soil underneath is moist and soft. These fallen leaves plays an important role in protecting cocoa trees from dryness.
*(As you explain this point, show a spot in the farm where there is no fallen leaves. Show the way the soil is dry and hard. And then move to a place where the ground is covered by fallen leaves. Remove the leaves and show the way the soil is moist and soft.)*

**2. Fallen leaves are also an important source of nutrients.** They eventually decompose and become organic fertilizer for the soil. If they are removed and put away from the trees, the nutrients will not be available for the cocoa trees.
*(As you explain this point, pick up some leaves from underneath that are getting decomposed. Show them that the leaves eventually become organic fertilizer.)*

**3. Mulching prevents weeds from growing.** Where the ground is exposed, weeds tend to grow. Where the ground is covered, weeds cannot grow.
*(As you explain this point, point out an open area in the farm where weeds are growing. Point out the areas covered by leaves where there is no weed. Show them the contrast between the two.)*

**4. Mulching prevents erosion.** If the farm is located on a slope, it is especially important to keep mulching of leaves to prevent soil erosion. If the soil is exposed, it can easily be washed away by running water. Mulching protects the soil surface and prevents the nutrients from being washed away.

## *Flipchart - No.14*




Show the Flipchart No.14 and explain the disadvantage of exposing nitrogen-based fertilizer to the air. (*Note: The fertilizer applied for mature cocoa trees may not contain nitrogen, but fertilizer for vegetables and maize is likely to contain nitrogen.*) When nitrogen-based fertilizer is exposed to the air, the nitrogen will be lost by a process called volatilisation. As can be seen in the illustration, the nitrogen gets together with oxygen, and forms nitrous oxide, which is one of the greenhouse gasses.

If fertilizer is exposed and not covered, the nutrients can also be washed away by rain water.

In order to ensure that the nutrients in fertilizer are absorbed by cocoa trees, we need to ensure the following:

**1. Right placement**
Applied fertilizer should be covered by soil or mulch. If you broadcast the fertilizer over the leaves, they naturally fall down the leaves and get covered by the leaves. After applying fertilizer, check to ensure that the fertilizer is covered by mulch.

**2. Right type and quantity**
CRIG's recommendation is 3 bags of fertilizer per acre. If you can conduct a soil analysis, it will gives you a precise recommendation on the type and quantity of fertilizer to be applied. Applying less than the recommended quantity will result in lower productivity. On the other hand, applying more than recommended would not necessarily increase your productivity either, as the crop cannot take more than it needs. It will rather lead to the acidification of the soil, and the soil becomes unsuitable for cocoa production.

**3. Right timing**
Fertilizer needs to be in contact with moisture in order to function. If you apply fertilizer when there is no rain, the nutrients will be lost through volatilisation. You need to make sure that you apply fertilizer during the rainy season.

## *Flipchart - No.15*


Show the Flipchart No.15 and ask:

**What do you see in this picture?**

The participants are likely to tell you that they see the excessive application of herbicide. Tell them that the use of herbicide is strongly discouraged, as it is harmful to both the environment and human health.

Additionally, many of the herbicides are prohibited by the SAN Standard. If you use any prohibited chemical, it is a critical non-conformity, which means that you can lose the certification because of it.

The following chemicals are prohibited by the SAN. If you use them or have them in your store, it could lead to the loss of certification.

| *All products that contain Paraquat* | *All products that contain Atrazine* |
|---|---|
| Gramoquat | Kaltrazine |
| Gramosharp Super | Maltrazine |
| Greenquat | Sun Atrazine |
| Gramozone | Cotrazine |
| Gramofast | Baltrazine |
| Gramoquick | Atrazina 500c |
| Kamazone | |

Instead of using herbicides, weeds should be controlled by manual weeding by cutlass. When cocoa trees are still young, the open spaces should be used for inter-cropping so that there is less space for weeds to grow. For mature trees, keeping good mulch by fallen leaves is the best way to prevent weeds from growing.

## *Exercise*

Tell the participants that you need **two volunteers** and ask them to raise hands. Ask the first two persons who raised their hands to come to the front. To one person, tell him/her that he/she is going to play a role of a **farmer** who is removing leaves around the trees to make his/her farm look "neat". To the other person, tell him/her that he/she is going to play a role of a **trainer**, who happens to visit the farmer on that day. The trainer sees the farmer removing leaves from the ground, and the trainer is going to advise the farmer on the importance of keeping good groundcover.

After the role play, clap for the two actors. Then provide your comments on the role play, and supplement any information that the person who acted as a trainer did not mention during the role-play.

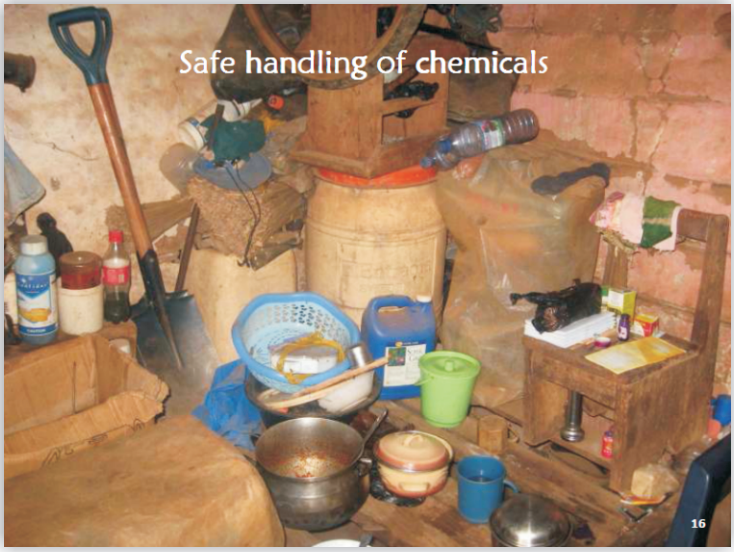
## *Handout - No.8*


The corresponding handout for this training session is No.8 "Soil conservation". As you finish the training, distribute the handout to the farmers so that they can take them home and review the training content.

# Safe handling of chemicals

Ask the participants:
**Where do you normally store your chemicals?**

***Flipchart - No.16***




After the participants tell you where they store their chemicals, show the Flipchart No.16 and ask the following question.

**Do you see any problem in this picture?**

After the participants share their observation, point out the fact that a chemical (:blue bottle on the left) is stored in a place where people eat food.

Explain the following:
If you keep chemicals in the kitchen, a child may think it is a soft drink or a oil and may drink it or put it into the food. Such an accident has already happened many times in Ghana before.
Chemicals release toxic fumes into the air where they are being stored. Therefore, by storing them in your bedroom, you and your family are inhaling toxic fumes each night. By storing chemicals in your house, you are putting your and your family's health at risk. You may be killing yourself and your family slowly.

Once the participants recognize the danger of storing chemicals in the house, ask them the following questions.

**How can you store chemicals in a safe way? How can you ensure that you are not putting your and your family's health at risk?**

After the participants share their opinions, explain the following points of a safe storage.

- A chemical store needs to be always locked with a key, so that children and other people cannot access it.
- The materials inside the store and the shelves should be made of waterproof materials. That way, even when some chemicals spill, the spilled chemical would not be absorbed by the store and you can clean the spillage.
- Place a warning sign on the storage to warn other family members and visitors of the danger.
- Put the powders on top and liquids at the bottom to prevent contamination in case of leakage of the liquids.

For a small farmer, it is not necessary to build a big warehouse. You can just create a small storage, using locally available materials. For example, you can convert a metal drum into storage, or build a small storage like the way you build a chicken cage. A group can also decide to build a collective store, which can be shared by the group members.

## *Exercise*

As much as possible, build an example of a good chemical store at the location of the training in advance, or choose a training site where it already has a good chemical store. It is important that farmers see an example by themselves to have a clear idea on how it looks like and how to build one.

Bring the participants to the good chemical store at the training site, and let them observe the storage. Confirm with them all the points that a chemical store should comply with, which you have explained earlier.

*Examples of good chemical stores*

## *Flipchart - No.17*


Show the Flipchart No.17 and ask the following question.

**Have you sprayed chemicals like this before?**

Many participants are likely to say “Yes”. Then ask those participants:

**After spraying chemicals like this, have you ever felt tired, dizzy or any headache? Have you ever felt that you are not perfectly well?**

The participants are likely to tell you different symptoms that they have observed before.

Ask them:
**What do you think chemicals are doing to your body?**

Point out the fact that chemicals enter into the body through skin, nose, eyes and mouth while spraying, and affect the nervous system, digestive system, cardiac system and various other functions of the body.

As the participants:
**How can you still spray chemicals, when necessary, without damaging your health?**

The participants are likely to mention some kind of protection. After hearing their responses, explain the following.

- For chemical spraying, you should wear an overall, a cap/hat, goggles, a mask, boots and gloves. What is important is that all parts of your body are covered.
- You should not use a dust mask, as it does not protect you against chemicals. Chemical particles can still pass through a dust mask. You need to use a mask with chemical filter.
- If an overall is too expensive, you can use available waterproof materials, such as a raincoat.
- Protective equipment should not be damaged or with a hole.

A group can decide to purchase protective equipment and share them among the group members. In that case, the group administrator needs to ensure that the farmers organize their spraying schedule well so that they all have access to protective equipment when they need one.

### *Exercise*

Bring the complete kit of protective equipment to the training so that you can show the items to the participants. You can ask one participant to volunteer to wear the full kit.

Discuss with the participants the issues of where to buy them, how much each item costs, whether they prefer to acquire the kit individually or collectively as a group. Make sure that they come out of the training with a clear idea on how to make it possible that they wear protective clothing during spraying.

*Demonstration of the protective equipment*

Ask the participants:
**After you finish spraying, what should you do with the contaminated protective equipment? Should you bring it home and ask your wife to wash?**

Tell them that bringing contaminated protective equipment home would put your family's health at risk. They should remove protective equipment at the farm and wash them before going home.

Then further ask:
**Just after you sprayed, what if your family and your neighbors enter into your farm?**

Point out the fact that a recently-sprayed farm still have chemicals in the air, and affects the health of the people who enter into the farm then.

As the participants:
**What can you do so that people do not enter into a recently-sprayed farm?**

After the participants share their ideas, tell them the option of putting up a red cloth or red tape on the recently-sprayed farm to warm the other people about the danger of entering there.

## *Exercise*

Tell the participants that you need **two volunteers** and ask them to raise hands. Ask the first two persons who raised their hands to come to the front. To one person, tell him/her that he/she is going to play a role of a **farmer** who is spraying chemicals without any protection. To the other person, tell him/her that he/she is going to play a role of a **trainer**, who happens to visit the farmer on that day. The trainer sees the farmer spraying chemicals without protection, and the trainer is going to advise the farmer on the importance of wearing protective clothing and what should be done after spraying.

After the role play, clap for the two actors. Then provide your comments on the role play, and supplement any information that the person who acted as a trainer did not mention during the role-play.

## *Handouts - No.9 and No.10*



The corresponding handouts for this training session is No.9 “Storage of chemicals” and No.10 “Protective equipment”. As you finish the training, distribute the handout to the farmers so that they can take them home and review the training content.

# Children on the farm

Ask the participants:
**Do your children sometimes go to the farm to help you? If yes, what kind of work do they do?**

***Flipchart - No.18***


After hearing participants' responses, show them the Flipchart No.18 and ask:

**What could happen if children do these kinds of work?**

Make sure that they understand that these children on the picture could have their health affected with chemicals or could get severely injured.

Ask them:
**What kind of work children should NOT do?**

After hearing their opinions, explain to them that children should not do the following work.

- Handling of chemicals
- Weeding with a cutlass
- Opening pods with a knife
- Harvesting with a harvesting hook
- Carrying heavy loads
- Climbing on tall trees for harvesting
- Any other work that could potentially cause damage to their health

Ask them:
**What kind of work can children do on the farm?**

Explain to them that they can help their parents with simple and light work, such as collecting harvested pods, removing fiber from the beans, carrying water, taking care of their siblings while their parents are working, etc. To ensure their safety, when children are helping on the farm, the parents should always be there with them.

Then ask them:
**When can children help you on the farm? Can they help you during the day on weekdays?**

Explain to them that children can help on the farm only outside the school hours, such as weekends, vacations and holidays. They must go to school on weekdays, and during the school days, they can only help maximum 2 hours per day. During the weekends and holidays, they could spend maximum 8 hours per day, helping on the farm. Their opportunity for education should never be compromised for farm work.

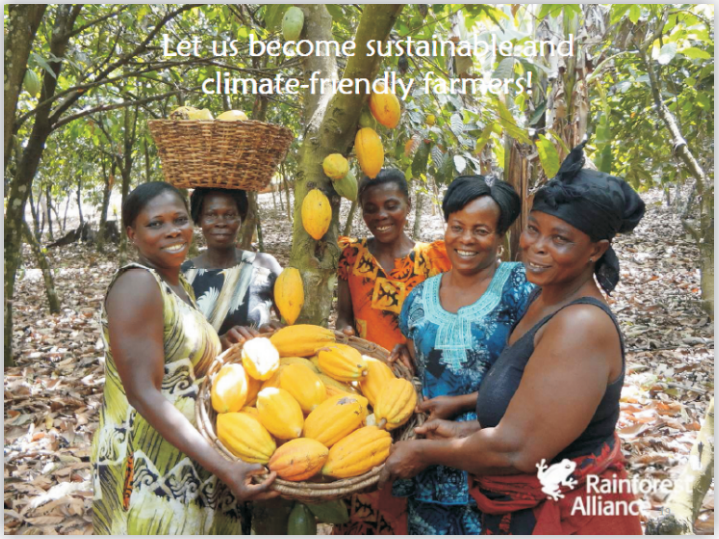
Explain to the participants that they should be careful about the following when they hire workers on their farms.

You should never employ children who are less than 15 years of age. As for youth between 15 to 17 years old, you may sign a written contract with the permission of their parents. In this case, you must ensure that they do not work over 42 hours per week, work at night, handle chemicals, or carry heavy loads. The young workers of 15-17 years old should be given an opportunity to continue schooling if they so wish.

## *Handout - No.11*


The corresponding handout for this training session is No.11 “Social conditions for workers”. As you finish the training, distribute the handout to the farmers so that they can take them home and review the training content.

## *Flipchart - No.19*




Show the Flipchart No.19 and thank them for participating in the training.

Encourage them to implement all that they have learned in the training and become leaders of sustainable and climate-friendly agriculture.