

Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	
	Monthly Report: June 2020	

Development Cooperation Projects of Thailand  
In Africa 2019  
โครงการความร่วมมือด้านการพัฒนาของไทยในทวีปแอฟริกา  
ประจำปี ๒๕๖๒

Sustainable Community Development Project  
In Benin  
(โครงการการพัฒนาชุมชนอย่างยั่งยืน ณ สาธารณรัฐเบนิน)

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To

Thailand international Cooperation Agency (TICA)

เสนอ

กรมความร่วมมือระหว่างประเทศ กระทรวงการต่างประเทศ



Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	
	Monthly Report: June 2020	

รายงานประจำเดือนมิถุนายน ๒๕๖๓  
Monthly Report: June 2020

Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	
	Monthly Report: June 2020	

## แผนงาน

ระหว่างวันที่ ๑ – ๓๐ มิถุนายน ๒๕๖๓

แผนงาน และกิจกรรมที่อาสาสมัครได้จัดทำประจำเดือนมิถุนายน ๒๕๖๓ มีดังนี้

๑. กิจกรรมในโครงการย่อยที่สามารถดำเนินการได้ในประเทศไทย และงานโครงการในพื้นที่ที่ยังค้างอยู่ที่สามารถปฏิบัติได้ในไทย โดยคำนึงถึงความสอดคล้องกับ Logical Framework และ Operation Plan ของโครงการ ฯ ซึ่งทางอาสาสมัครเห็นว่าการทำสื่อ หรือคู่มือกิจกรรมต่าง ๆ ให้กับเกษตรกรในท้องถิ่น ซึ่งเป็นข้อมูลที่เข้าใจง่าย เกษตรกรสามารถนำข้อมูลไปใช้ได้จริง ได้แก่

### ๑.๑ การตัดแต่งกิ่งไม้ผล

- การตัดแต่งกิ่งมะม่วง (How to prune mango tree)
- การตัดแต่งกิ่งส้ม มะนาว (How to prune Citrus Trees)
- การตัดแต่งต้นกล้วย (How to prune banana tree)

### ๑.๒ การขยายพันธุ์พืช (ส้ม, มะม่วง) (How to Air layer a tree)

### ๑.๓ การผลิตสารไล่แมลงด้วยวิธีชีวภาพ (How to make Organic Pesticide)

### ๑.๔ การผลิตสารไล่ยุงด้วยวิธีง่าย (Homemade Mosquito Trap)

Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	
	Monthly Report: June 2020	

## รายงานประจำเดือนมิถุนายน ๒๕๖๓

### How to prune Mango Trees

Pruning is much more than the simple act of sawing off limbs and should be a regular part of all tree and shrub maintenance programs.

Proper pruning encourages strong growth, increases flower and fruit production, improves plant health and removes damaged limbs all which give aesthetic appeal to a tree. Pruning at the right time and in the right way is critical since it is possible to kill a healthy tree through neglect or over – pruning. Essentially pruning should enhance the trees natural shape.

A few main reasons to prune your trees

- Reduce risk of failure from dead or weak branches
- Provide clearance
- Reduce shade and wind resistance
- Manage tree health
- Manage flower or fruit production
- Improve aesthetics
- Improve tree structure
- Save a storm – damaged tree

## Cutting after Harvest

1. Prune immediately following harvesting using loppers. After harvest the fruits, it's important to prune in preparation for the next season of fruits bearing Summer pruning is also idea because the wounded parts of the tree heal faster



2. Cut lower branches to 1.2 meters from ground level. This is called “skirting” and will make it easier for you to conduct weed removal, watering and fertilizer. Keeping a modest tree height improves flowering and in turn fruit production



3. Remove any strong vertical shoots as opposed to horizontal shoots. During the regular inspections, always favor horizontal shoots that show potential for growth. This promotes a strong compact structure

- Leaving a few vertical branches is fine if you have enough horizontal branches to provide support (around 3 to 4 primary limbs)
- a mango or orange tree should have a solid, fully formed structure after 3 years



4. Trim branches down to 50 centimeters in length. Focus on trimming horizontal shoots and do so immediately after harvest. This is especially important during the second or third year following planting as trimming helps your tree put more energy into production

- Continue this procedure through the second year and then stop



Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	
	Monthly Report: June 2020	

## How to Prune Citrus Trees

Pruning is an important part of keeping orange trees productive and healthy. At least once a year, perform a close inspection of the tree. Look for diseased, dead, or infested branches that need to be removed. Cut them out as close to the trunk as possible. Try not to trim down more than 20% of your tree at any given time. Following careful trimming practices will make it possible for the tree to grow and thrive

## Timing Pruning

Prune at least once a year. Once an orange tree is established and producing fruit, it needs to be fully pruned every 12 months. Go ahead and mark pruning dates on calendar so do not forget them. If the tree suffers from disease or damage add another pruning session in.

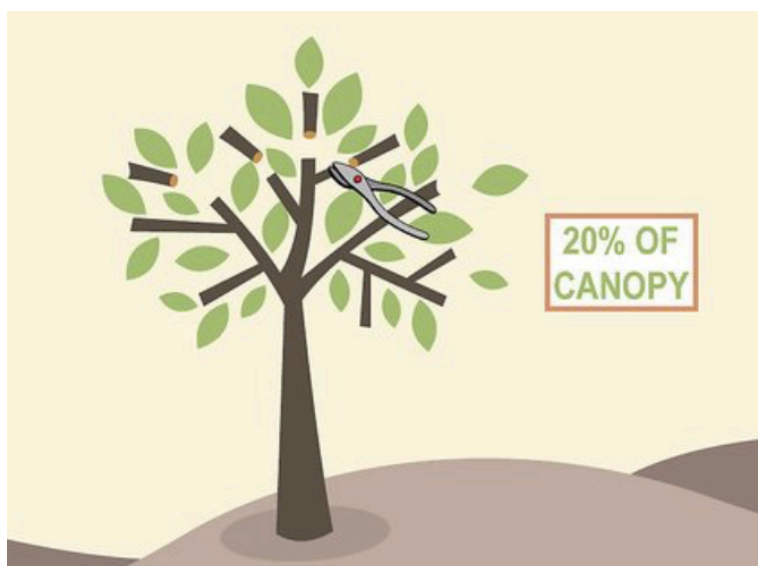


Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	
	Monthly Report: June 2020	

## Tailoring Pruning

1. **Aim to remove 20% of the total canopy.** It's easy to get carried away when pruning but removing too much of a tree can cripple its ability to bear fruit. Take a good look at the tree before starting, so that will be able to estimate what a 20% pruning should look like. Pruning over the course of several days can also help to keep in check

- Most of the best fruiting sites on an orange tree lie on the outermost branches. If cut more than 20% of these, are cutting prime fruit bearing branches, even if by accident.



2. **Focus on the long, gangly branches.** Take a step back and focus on the overall shaper of the tree. Look for branches that are poking out from the canopy in an unsightly or obvious way. Target branches that block your walking path around the tree. On the top of the tree, trim back branches that bend over in a U – shape.



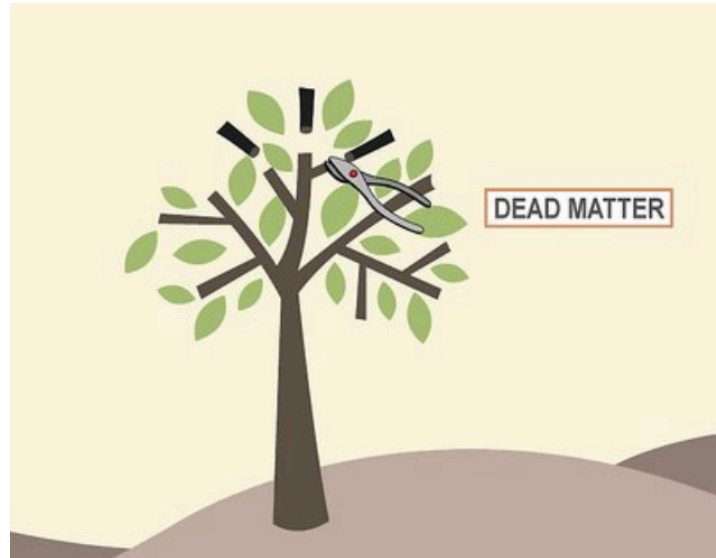
3. **Remove any low – lying ‘skirting’ branches.** When branches touch the soil or ground they can rot or become a superhighway for pests. They also stop air from moving around the trunk, which can cause disease. Trim back low branches until they are at least 3 feet (0.9 m) off the ground



4. **Cut out any swollen stems.** Adult wasps like to lay eggs deep inside the new stems of orange trees. As the larvae grow, a ‘gall’ forms where the stem begins to balloon outwards. Use your shears to snip these branches away from your trees. Gather and burn the branch clippings or place them in a sealed plastic bag



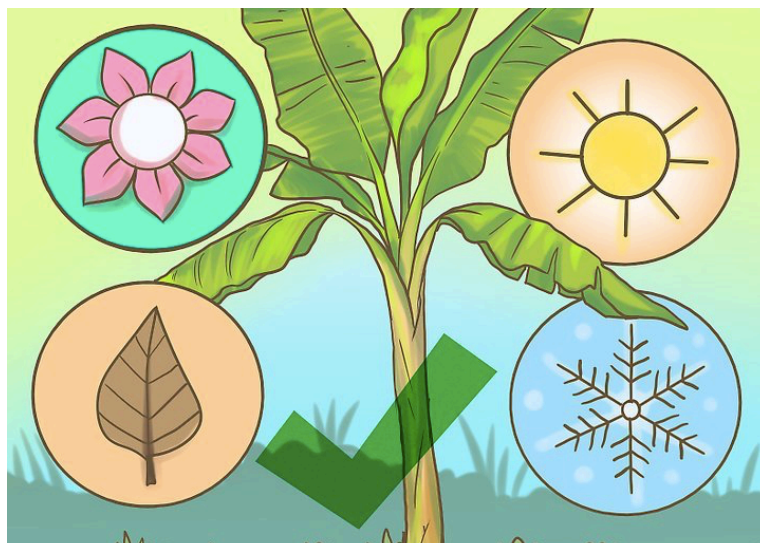
5. **Cut out any dead or diseased wood.** Pull aside the outer branches and peer into the interior area of the tree. Scan the branches and look for diseased or damaged areas. Broken or split branches, limbs that are rotting, and spots with fungus are all potentially breeding ground for additional pests and diseases. Clip them away from the tree.



### How to Prune Banana Trees

#### Timing when to prune banana tree

1. **Check banana tree during each season.** Paying attention to the time of year will help a variety of reason. Some common reasons include frost, insects and dehydration. These reasons will vary, for instance frost will be after winter while insects tend to be in the winter (In Benin around December) and dehydration will be during summer



2. **Prune leaves that are brown.** Dead or dying banana leaves are quite obvious. They will appear wilted, dry and brown. Once they're brown, there is no reviving them and it will be necessary to prune them in order to keep your banana tree looking lush.

- Be sure to make sure banana plant is getting enough water. If live in an area that gets plenty of rainwater will not need to give tree any additional water. If live in a dry area be sure to water the tree until the soil is moist.

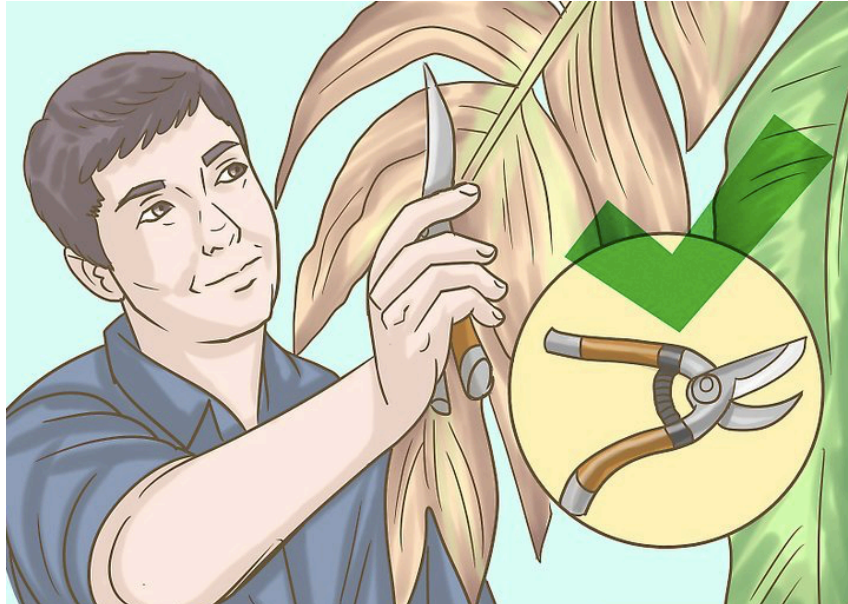


3. **Watch for leaves with holes to know which stems to prune.** If banana tree leaves have holes they might have been affected by insects. This commonly happens in summer. If this is the case might need to treat tree with medicine of treatments.



### Cutting the Leaves

1. Trim any brown dead leaves with garden shears or knife. Will easily be able to tell dead palm leaves from their brown color and dry texture.

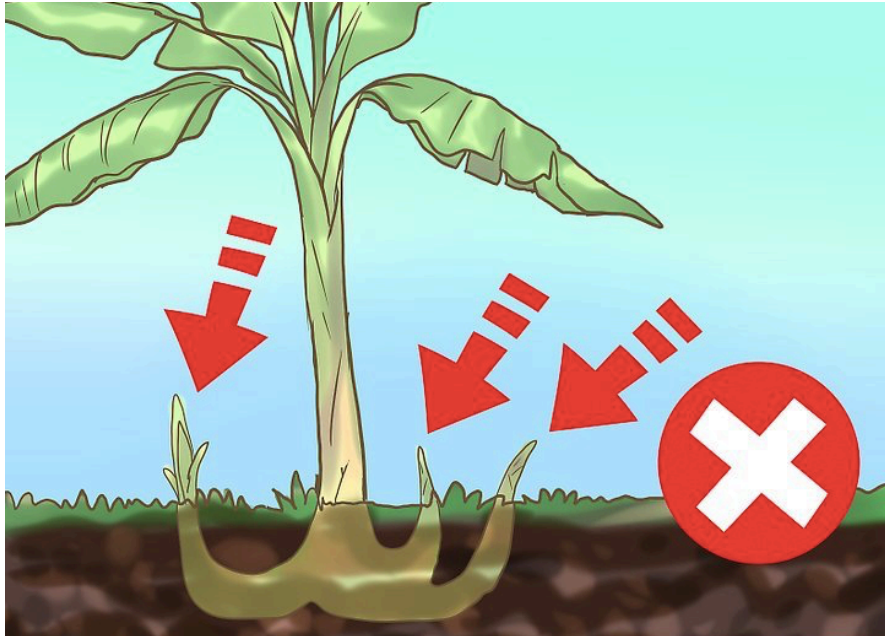


2. Use a sharp blade or knife to prune the stem. Cut the stalk with a clean and sharp knife about ½ to 1 inch from the trunk. Regular pruning will allow banana plant to remain looking lush

- Make sure you have waited until you have harvested any fruit and until your plant has flowered before you prune the stem



**3. Cut any suckers that have sprouted.** If any suckers have sprouted away from main banana plant, will need to cut them down as they have a tendency to spread. It is suggested to leave at least one main sucker for actual banana tree.



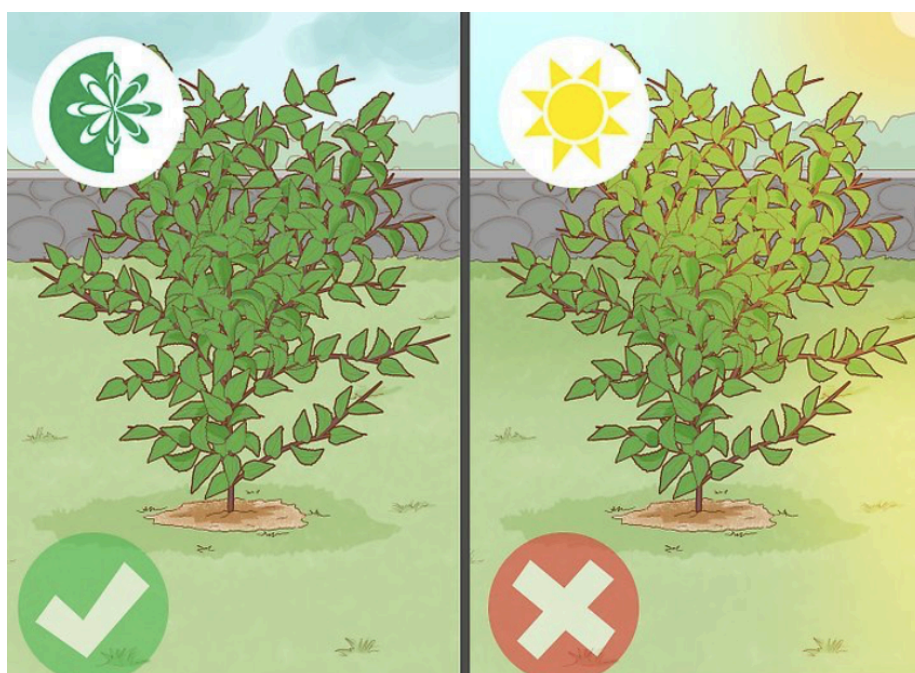
Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	
	Monthly Report: June 2020	

## How to Air – Layer a tree (Orange and Mango)

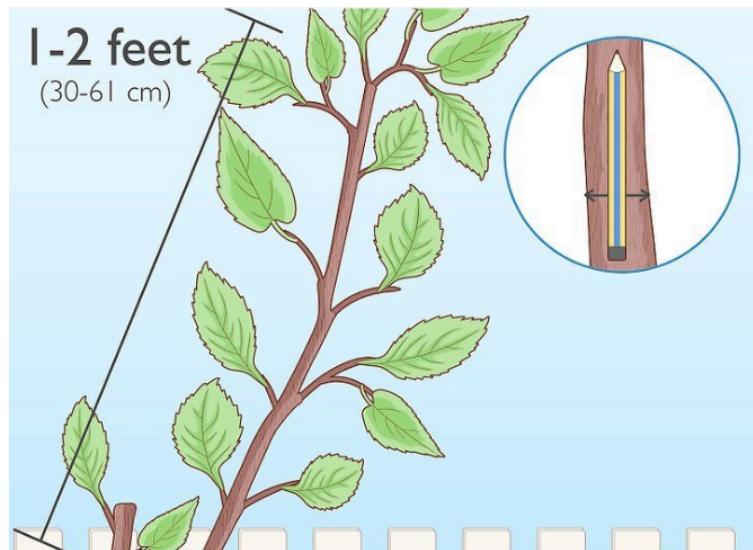
Air layering is a technique to propagate fruit – bearing and flowering plants, such as orange apple and lemon tree to make smaller clones of the parent. Select one of the newer branches on the tree and cut off a ring of bark. Wrap damp sphagnum moss and plastic wrap around the exposed wood to lock in moisture and help the roots form. Once you see roots growing you can remove the branch and plant it in a pot so it can grow

### Part 1 Exposing the Wood

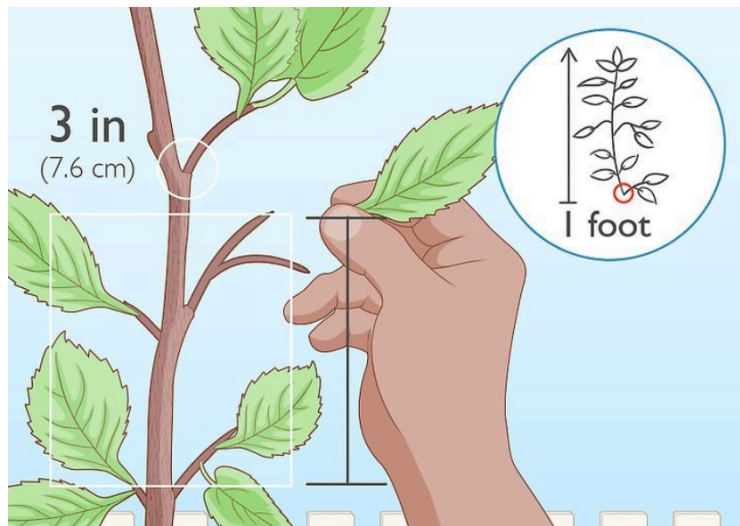
**1.1 Start air layering in the spring or early summer.** Air layering works best when the roots have the summer growing season to form. Pick a cloudy day to air layer the tree so the sun doesn't put stress on it. In some region that don't have spring season you can also try air layering in the late summer months though the roots may not grow as well if temperatures dip below freezing during the winter



**1.2 Choose a branch from last season's growth that's thicker than a pencil.** Look for branches that point up and are at least 1 – 2 feet (30 – 60 cm.) long. Try to choose branches that grew during the last year since they produce roots better than old, established ones. Make sure the branch is at least as thick as a pencil, or else it may not grow well later on. If you're air layering in the late summer choose growths from the current season instead and you can air layer multiple branches on the same tree.



**1.3 Remove the foliage and twigs 3 inches (7.5 cm.) around a leaf node.** Locate a point where leaves connect to the branch that's about 1 foot (30 cm.) from the end of the growth. Pull the leaf off of the branch by hand so there's about 3 inches (7.5 cm.) clear on either side of the node. If there are twigs or other branches in that area, cut them off with a gardening knife or pruning shears. Don't remove all of the foliage from the branch or else it won't grow as well when you remove it from the tree



**1.4 Make 2 parallel cuts through the bark so they go around the branch.** Push the blade of a gardening knife into the bark just below the leaf node until you feel it make contact with 1 – 1 ½ inches (2.5 – 3.8 cm.) lower down the branch and cut another ring around the branch's circumference. Don't apply too much pressure to the knife blade or else you could cut through the branch completely



**1.5 Peel the ring of bark off of the branch.** Put the knife against the top cut and push the blade down toward the bottom cut to start peeling the bark off. Pinch the piece of bark by hand and slowly tear it away from the branch. Continue removing the bark from the ring until you see green or white wood underneath.

- You may need to make a vertical cut from the top ring to the bottom ring to help you get a better grip on the bark.
- If you get skin irritation from tree sap, put on gardening gloves before you peel off the bark



**1.6 Scrape the exposed wood with the knife blade.** Hold the knife so the blade is parallel against the top the ring. Drag the blade down to the bottom of the ring to remove the protective plant layer on the wood. Scrape the wood up and down as you work your way around the branch

- Rubbing the wood removes a layer of cells called cambial tissue, Which would cause the bark to grow back if you left it on.
- Disinfect your knife blade with rubbing alcohol after cutting each branch if you plan on air layering multiple trees. That way you prevent spreading diseases or bacteria between plants.



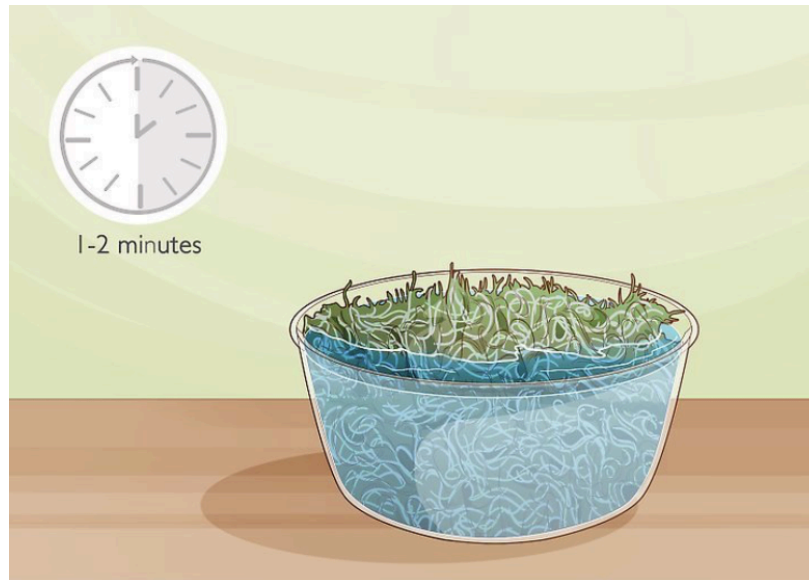
## 2. Growing the Roots

**2.1 Apply a rooting hormone to the exposed wood.** Get a liquid rooting hormone so it's easier to apply to the exposed wood. Dip a paintbrush in the rooting hormone and let any excess drip off of the bristles. Spread the rooting hormone on the ring you cut around the branch to help increase the chances of roots forming

- You can use Apple vinegar or honey instead rooting hormone



**2.2 Moisten a handful of coconut dust in clean water.** Coconut dust is a common rooting medium that retains moisture well. Take a large handful of the coconut dust and soak it in a container with water for 1 – 2 minutes. Pull the coconut dust out from the container and squeeze out any excess water so it isn't dripping wet.



**2.3 Wrap the coconut dust around the exposed wood.** Split the ball of coconut dust into halves and hold one in each of your hands. Press the coconut dust onto the top and bottom of the branch so it extends 1 inch (2.5 cm.) past the edges of the ring. Squeeze the coconut dust tightly so it has firm contact with the wood and stays in place

- Let go of the coconut dust slowly to make sure it doesn't fall off the branch. If it starts to slip, keeping holding it or ask a helper to hold it while you continue working.



**2.4 Cover the coconut dust with plastic wrap or aluminum foil.** Rip a sheet of plastic cling wrap or aluminum foil large enough to cover the moss off from the roll. Press the wrap or foil tightly against the coconut dust and the branch so it has firm contact. Make sure to wrap the entirety of the coconut dust so you trap in moisture and promote healthy root growth.

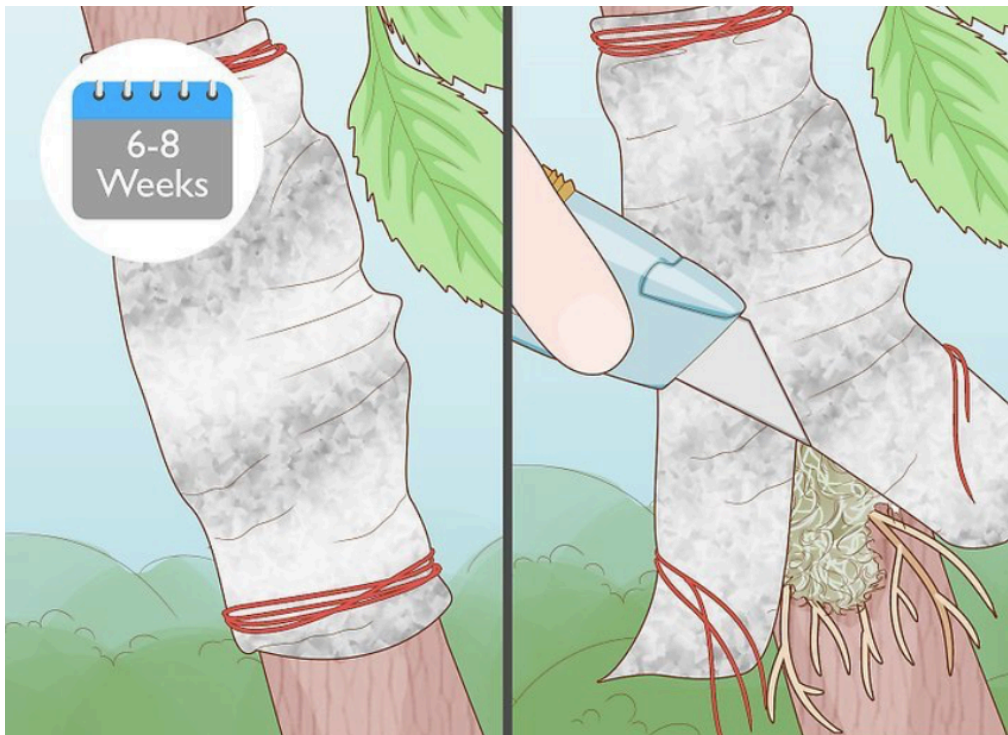
- You can use the local plastic bag to wrap
- Plastic wrap allows you to see when roots form easier than foil but either will work the same
- If the part of the branch with the coconut dust gets direct sunlight throughout the day use dark colored or opaque plastic wrap to prevent the coconut dust from drying out

Tip : if the plastic wrap or aluminum foil doesn't stay tight against the coconut dust, tie the ends to the branch with twine or twist ties.



**2.5 Leave the branch on the tree untill the coconut dust fills with roots.** Look through the wrap or peel back the foil once per week to check for roots growing throughout the coconut dust. If you don't see any, leave the wrap on the brach and take care of the tree as you normally would. If you do see roots around the outside of the coconut dust, then you can remove the air layer from the tree.

- Typically, it will take around 6 – 8 weeks for healthy roots to fill in the coconut dust but it may vary based on the climate and tree species.
- The coconut dust should stay moist as long as it's wrapped tightly but rewet it if it feels dry when you check for roots.



Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	
	Monthly Report: June 2020	

### Part 3 Transplanting the propagation

**3.1 Fill half of a pot with drainage holes with potting soil.** Choose a pot that has a diameter and height at least twice the size of the roots growing on the air layer. Make sure the pot has drainage hole on the bottom so the soil doesn't get waterlogged. Choose a potting mix meant for trees and pour it loosely into the pot

- You can use clay or plastic pots for your propagation

Warning : Avoid planting the propagation directly in the ground since it could stress the tree and prevent it from growing healthy



**3.2 Cut the branch off just below the new roots.** Hold the branch with your nondominant hand just above the coconut dust to keep it steady. Grip the branch with a pair of pruning shears or tree saw right underneath the coconut dust and squeeze the handle together. Lift the cut branch away from the tree being careful not to hit or damage the roots.



**3.3 Remove the plastic wrap or foil from the roots.** Poke your gardening knife carefully through the plastic wrap or foil to make a starting hole. Carefully pull the wrap apart by hand so you don't damage any of the roots inside. Pull off as much of the wrap or foil as possible but leave the coconut dust around the roots so you don't stress them.

- If you remove the coconut dust from the roots the tree may get stressed and prevent them from growing well



**3.4 Set the roots in the soil and backfill the pot.** Hold the cut branch vertically with your nondominant hand and keep it steady in the center of the pot. Use a trowel or shovel to scoop more potting mix around the coconut dust so it's completely covered. Continue filling the soil until there's 1 – 2 inches (2.5 – 5 cm.) of space between the lip of the pot and the soil's surface.

- Shape the soil around the tree into a small mound to help prevent it from getting waterlogged or developing root rot.

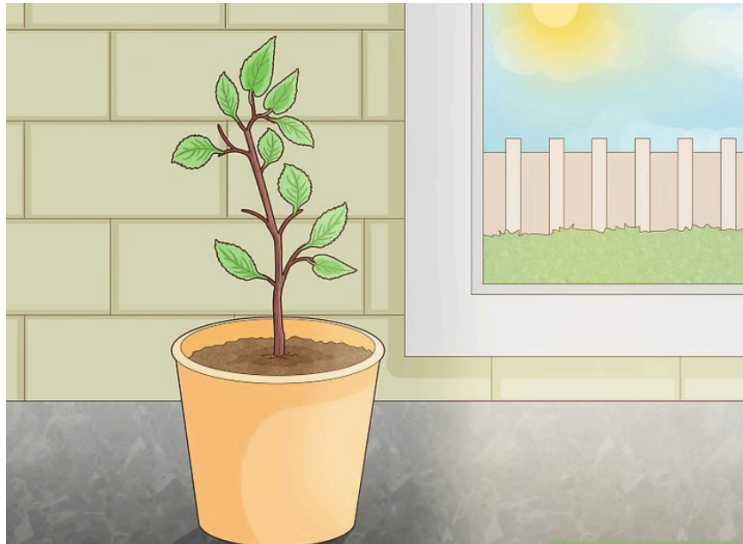


**3.5 Water the soil so it's moist 2 in (5 cm.) below the surface.** Use a watering can to wet the soil until it start puddling on the surface. Allow the soil to absorb the water and let it drain from the holes in the bottom of the pot. Pour water in the pot until it puddles again and let it soak deeper toward the roots. Check if the soil feels wet 2 inches (5 cm.) below the surface and it does, stop watering.

- Water the tree whenever the soil feels dry 1 inch (2.5 cm) below the surface

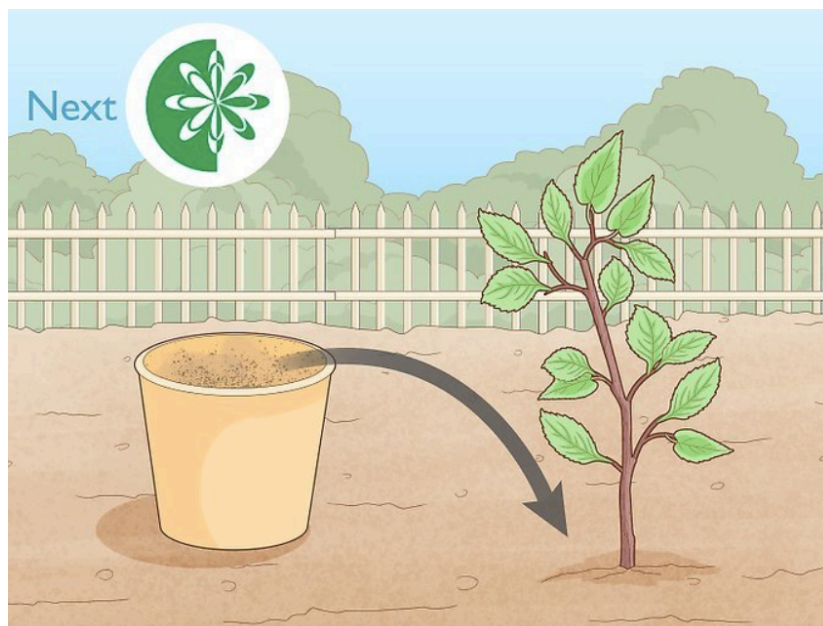


**3.6 Keep the tree in a shady area out of direct sunlight.** Keep the plant in its pot while the root system adapts to the new growing medium.



**3.7 Plant the new tree in the ground during the next rainy season.** Allow the plant's roots to fully develop in the pot, which usually takes 4 – 5 months to form. When you're ready to transplant dig a hole in the ground that's twice as wide and 6 inches (15 cm.) deeper than the pot. Carefully pull the tree out of the pot and set it in the hole filling it back in. Water the tree as you normally so it doesn't get stressed.

- Install a vertical post next to the tree and tie the trunk to it if you want to help it grow straight.



Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	 TICA
	Monthly Report: June 2020	

## How to Air - Layer a tree2



**A** : Cincturing (ring – barking) by removing the bark and tissue outside the wood (phloem and cambium), leaving a gap of about 2 to 3 cm (1 to 1 ½ inches)

**B** : Wrapping the ring – barked area with moist coconut dust or saw dust.

**C** : Wrapping the coconut dust tightly with a plastic and tying off the end to limit water loss.

**D and E** : wrapping the air – layer with plastic or aluminum foil to exclude light.

## How to make Organic Pesticide

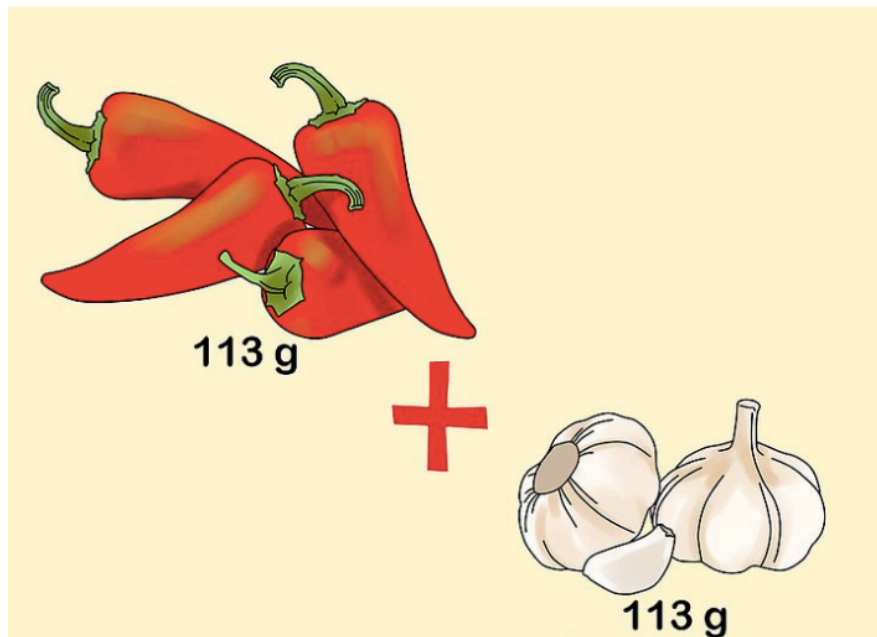
### Part 1 By vegetables

#### Materials

1. Hot peppers
2. Garlic
3. water
4. Blender

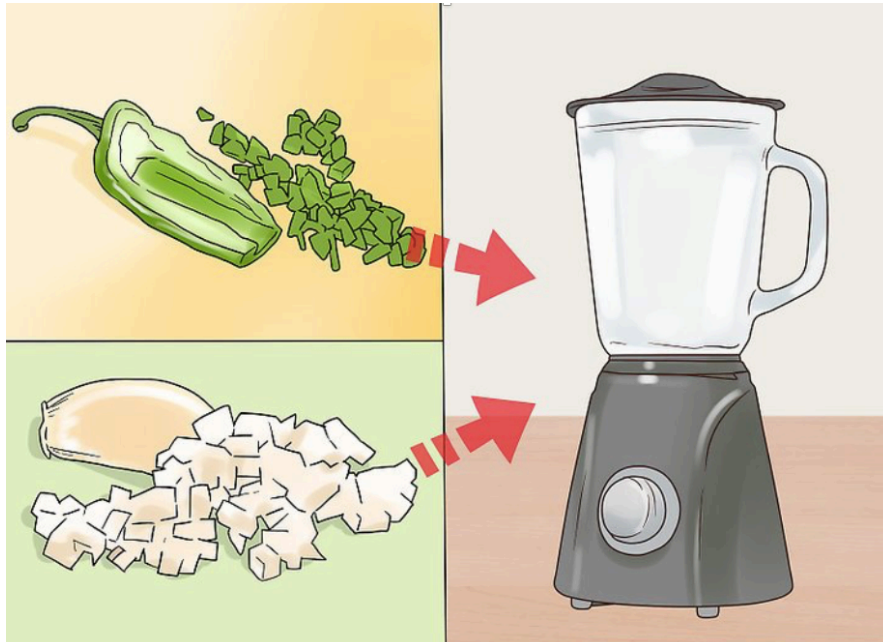
#### Method

1. Mix  $\frac{1}{2}$  c (113 g) of hot peppers with  $\frac{1}{2}$  c (113 g) of garlic or onion. You can use any hot peppers you like such as piment chili or local red chilies. You can also use a combination of onion and garlic instead of one of the other. Chop up all the vegetables thoroughly



2. Blend the vegetable together in an electric blender. Transfer the chopped veggies to a blender or food processor. Pulse the mixture until it forms a thick, Chunky paste.

- If don't have an electric blender can use a mortar instead.



3. Add the vegetable paste to 2 c (500mL) of warm water. Measure out the warm water and pour it directly into the blender. Give the ingredients a stir to thoroughly mix them together



4. Pour the solution into a container and let it sit for 24 hours. You can also use a plastic container but it will trap an unpleasant odor in the plastic. If possible keep the container in a sunny location. If not at least keep the mixture in a warm spot for about 24 hours.



5. Strain the mixture. Pour the solution through a strainer removing the vegetables and collecting the vegetable-infused water into another container. This water is your pesticide



6. Pour your pesticide into a squirt bottle. Make sure that the spray bottle has first been cleaned with warm water and soap to rid it of any potential contaminants. Use a funnel to transfer the liquid into the squirt bottle and replace the nozzle.



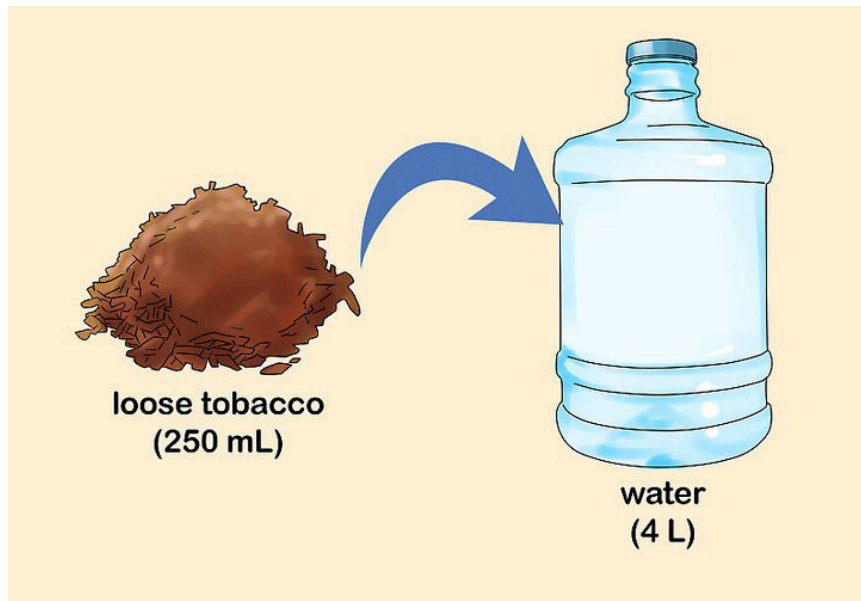
7. Spray your plants with the pesticide. Treat the infected plants every 4 to 5 days with the solution. After 3 or 4 treatments the pests should scatter. If the area is thoroughly covered with the solution this pesticide should keep bugs away for the rest of the season

- Avoid spraying the plants during the sunniest parts of the day since it could burn your plants.



## Part 2 Using tobacco

1. Mix 1 c (250 mL) of loose tobacco into 1 gallon (4L) of water. Combine the 2 ingredients thoroughly in a large bowl or container. Tobacco is useful in targeting caterpillars, aphids, and worm but it's not to use on peppers, tomatoes, eggplants, or any member of the solanaceous plant family



2. Sit the mixture out in the sun in another warm location. Put the container somewhere it won't be disturbed. Allow the mixture to rest for 24 hours.



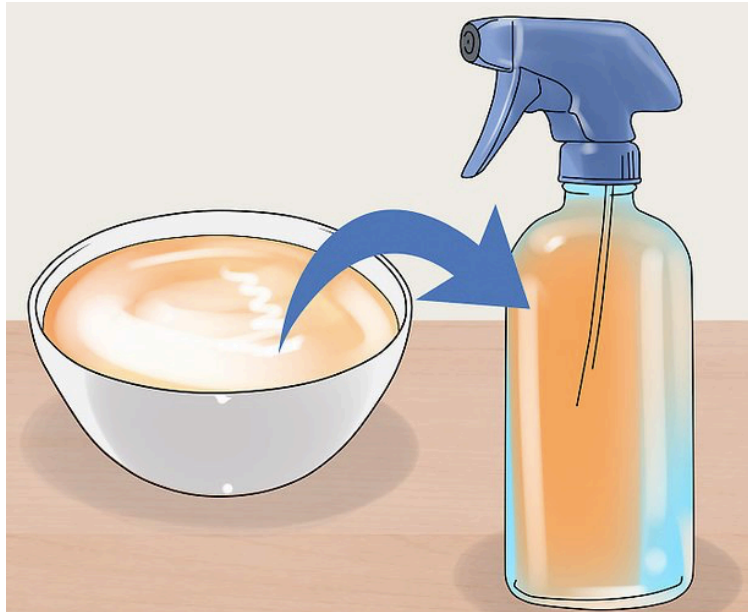
**3. Check the color of the mixture.** Ideally the pesticide will look similar to the hue of a light tea. If it is too dark dilute it with water. If it is too light to see allow it to sit an additional few hours.



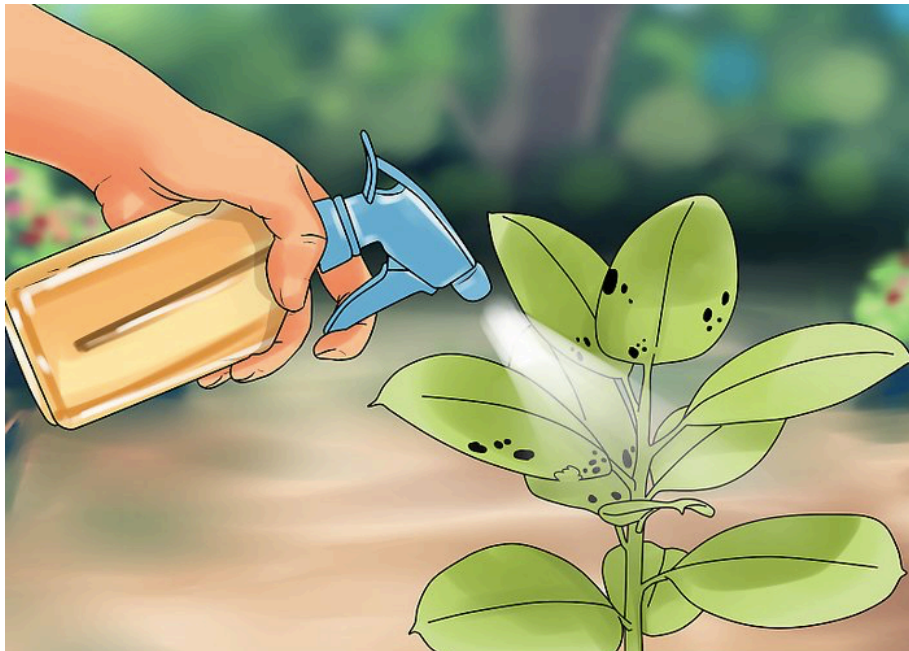
**4. Add 3 tbsp (45mL) of mild liquid dish soap to the solution.** Opt for a mild soap like dawn or castile soap for best results. Pour it directly into the mixture then stir thoroughly to combine the ingredients



5. **Pour the mixture into a large squirt bottle.** Use a funnel to transfer to liquid into a squirt bottle and replace the nozzle. Shake the solution inside the bottle once more to combine it further.



6. **Spray the infested plants with solution.** Focus on areas that show the most damage, but also cover spots that still seem in good condition



## How to make a plastic bottle mosquito trap

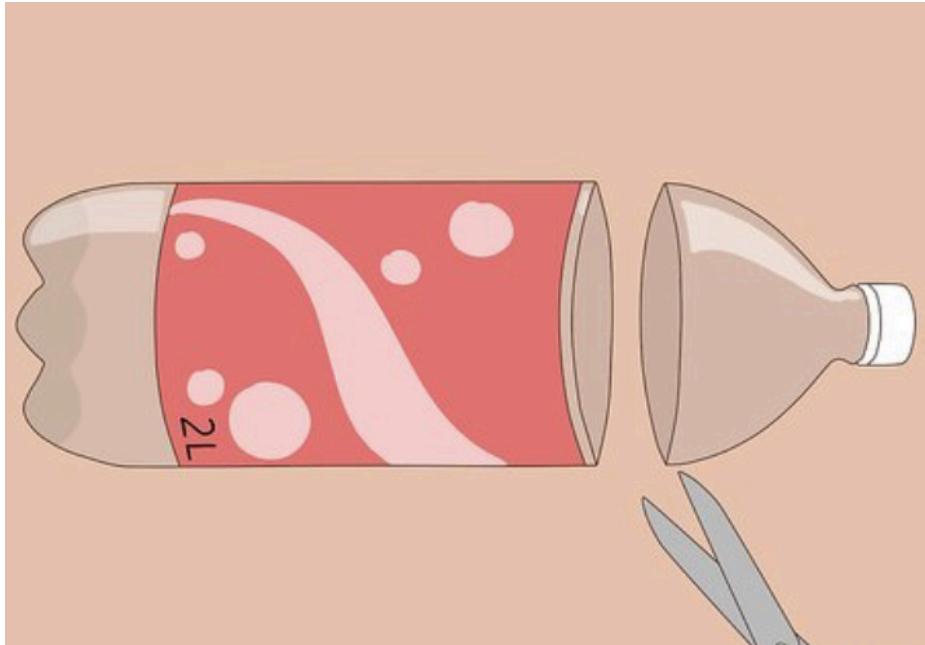
You can easily reduce the number of mosquitoes on your property with a plastic bottle trap that will attract and kill the mosquitos. The liquid in each trap will last about two weeks, and then, it can be easily replace. For increased effectiveness place multiple traps around your house or property

### Part 1 Preparing the Trap Materials

- An empty plastic 1.5 liter bottle
- A marker or pen
- A box cutter
- A tape measure
- ¼ cup brown sugar
- 1 – 1 1/3 cup hot water
- 1 gram of yeast
- Measuring cup
- Tape (duct, scotch or electrical are fine)

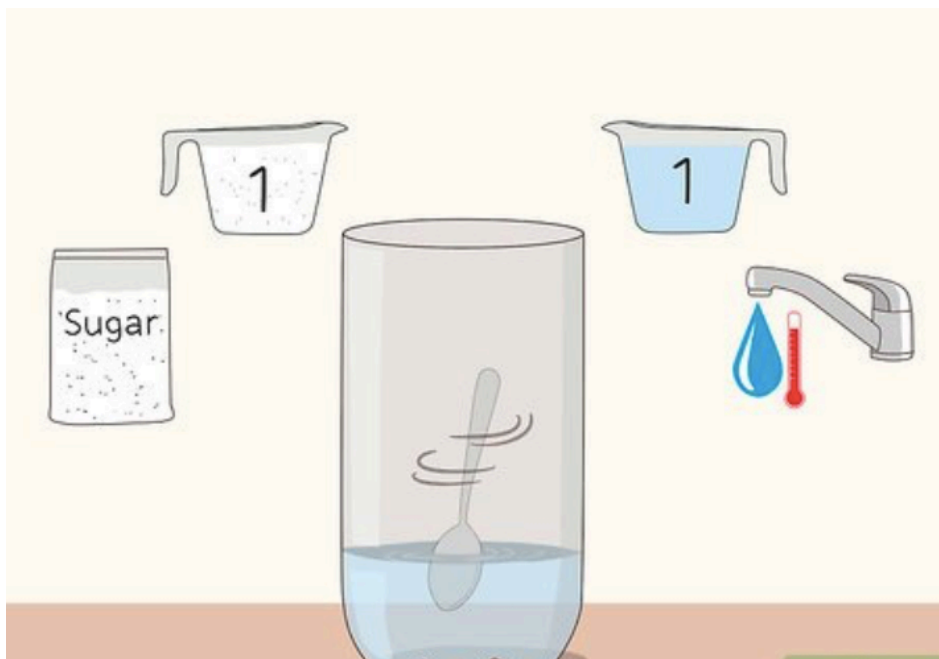


1. **Cut off the spout of an empty 1.5 or 2 liters plastic bottle.** Use a sharp pair of scissors or box cutter to cut around the bottle, just above the label or where the bottle starts to curve toward the lid. Keep the spout as you will need to use this later

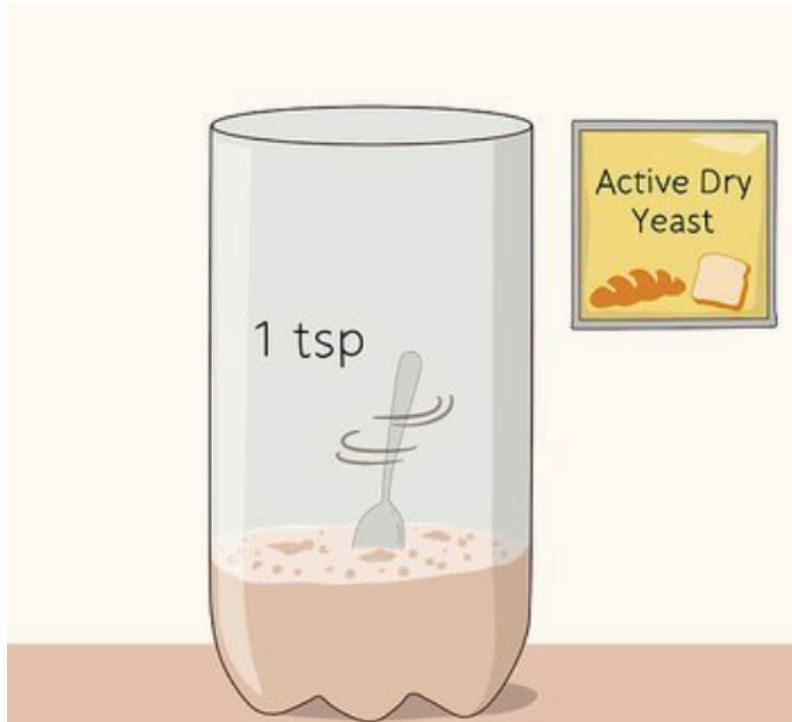


2. **Mix 1 cup (200 grams) of brown sugar and 1 cup (250 mL) of hot water into the bottle.** Measure the sugar and hot water into the bottle. Stir the mixture with a spoon until the ingredients are thoroughly combined

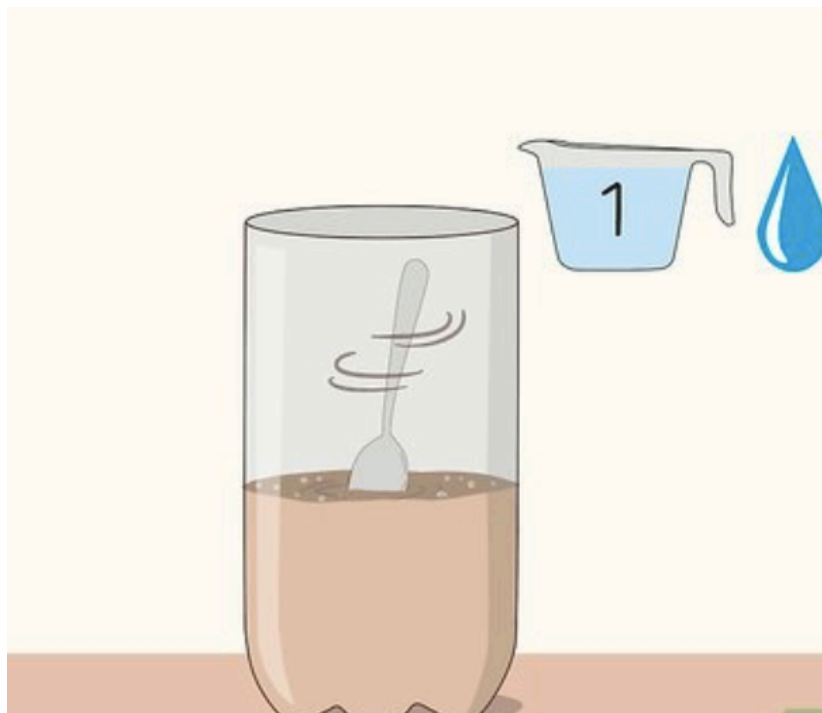
- Don't use boiling water as this can damage the yeast



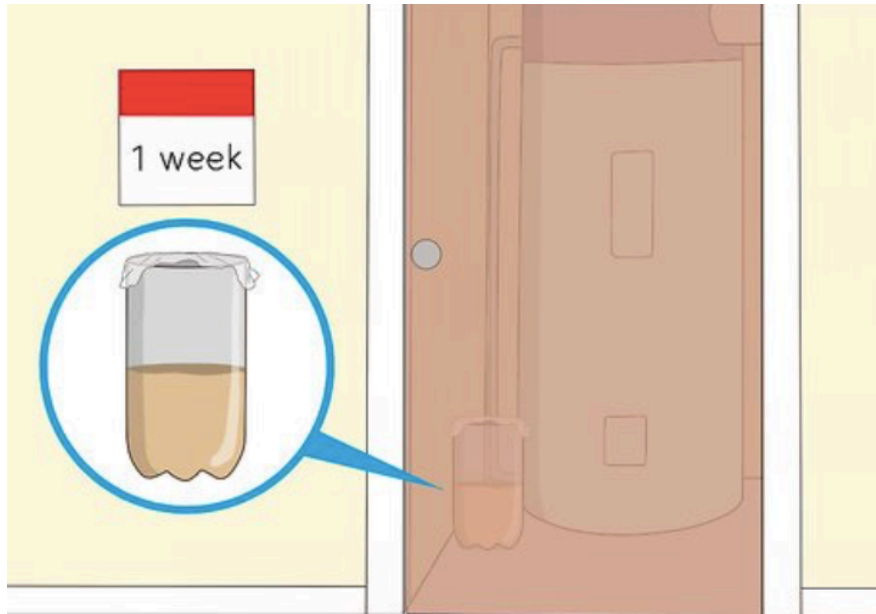
3. Stir in 1 tsp (3.5 grams) of active dry yeast. Measure the yeast into the sugar and water solution. Use a spoon to stir the mixture until it is frothy. This normally takes about 30 second. The yeast feeds off the sugar and releases carbon dioxide which attracts mosquitoes.



4. Mix in 1 cup (250 mL) of room – temperature water. Measure tap water in to the mosquito trap. Stir the mixture until the ingredients are thoroughly combined



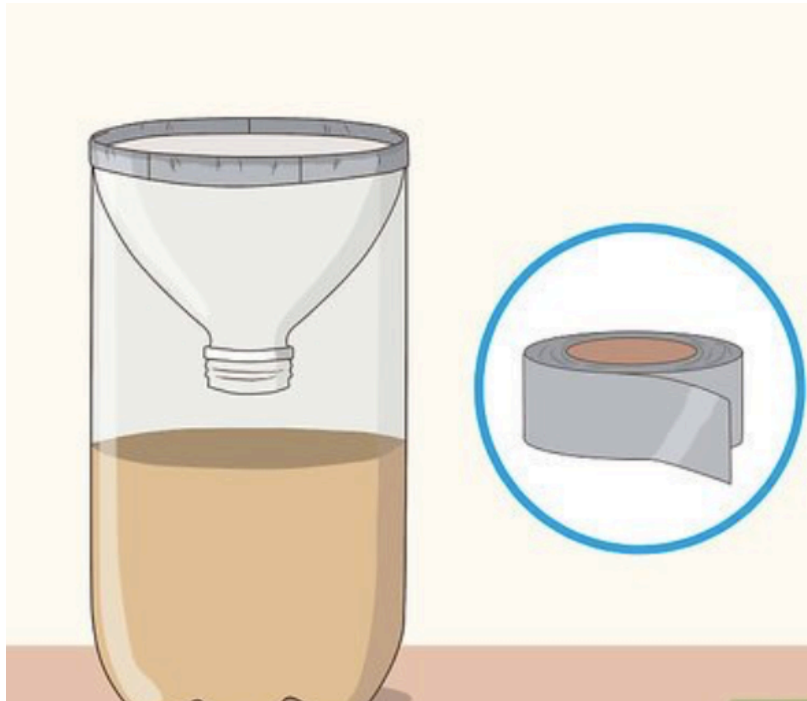
5. **Cover the bottle and then keep it in a warm place for 1 week.** This gives time to the yeast to ferment. Place plastic wrap over the container but don't secure it in place as the mixture needs to be able to breathe. Store the bottle in a warm, dry, and humid place



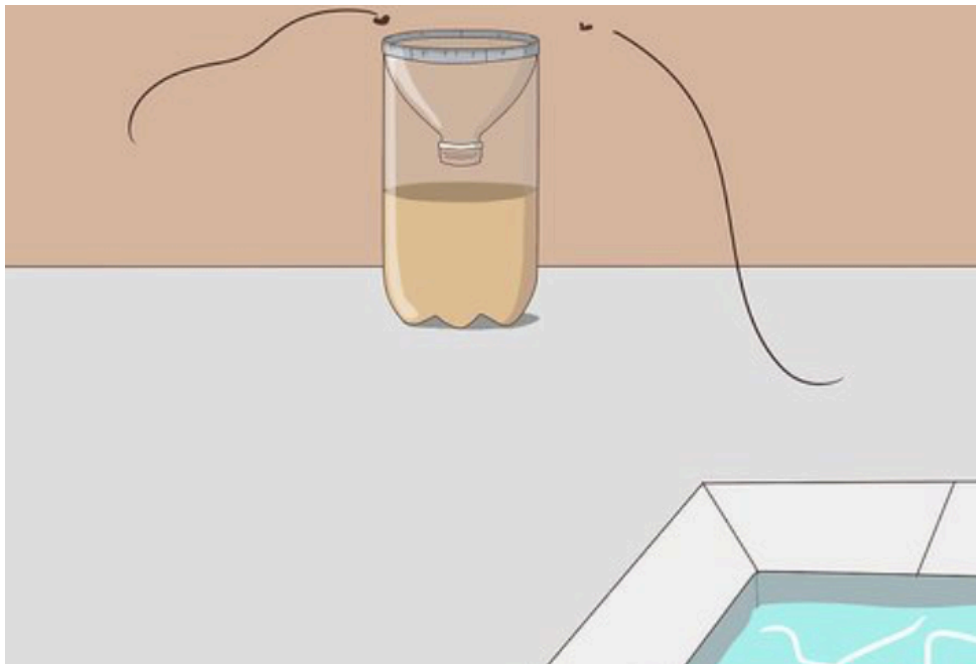
6. **Place the spout upside down inside the bottle to create a funnel.** This confuses the mosquitoes and cause them to get trapped in the bottle. Take the sprout that you cut off the bottle and insert it into the bottle upside down. Line the cut edges of the bottle up so that they are at the same height.



**7. Secure the spout in place with tape.** Use tape to connect both pieces of the bottle. Cover the entire rim to ensure that the spout and bottle are securely joined



**8. Place the trap in an area that has lots of mosquitoes.** Mosquitoes are often to light and water. Consider placing the trap beside a pool or by an outdoor light.



Sustainable Community Development Project in Benin	Development Cooperation Projects of Thailand in Africa 2019	
	Monthly Report: June 2020	

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