

Farmers First

Objectives:

1. Farmers will be motivated to properly plant and care for their tree seedlings to achieve the benefits
2. Farmers will understand the correct steps for tree planting and early care to maximize survival rates

Agenda (45 min)	Materials & Prep for each training location (could be 2-3 per nursery)
<ol style="list-style-type: none"> 1. Benefit of trees (5 min) 2. When & Where to plant trees (7 min) 3. Spacing & Hole preparation (15 min) 4. Tree planting practice (10 min) 5. Early management (15 min) 6. Review questions (5 min) 	<ol style="list-style-type: none"> 1. Seedlings of each of the 4 species (2 per species) 2. 3+ Shovels and 3 yekum mekoferia (straight digging hoes) 3. 1 watering can with full water 4. 1-meter stick marked at 10, 20 and 30 cm 5. Compost (at least 16 shovels full) 6. Grass and sticks 7. Colorful images/fliers: <ol style="list-style-type: none"> a. Good vs. Bad Tree Plantations flier b. Small vs. large hole tree diagram page. 8. Seedling Flier

Benefit of Trees (5 min)

SAY: Now we will discuss and practice the best recommendations for tree planting to maximize survival of your seedlings. You must pay attention and participate or I will not give you the “pass” to take your seedlings afterwards

ASK: Pick each species and say, what is the name of this seedling? What are their benefits?

- *Take 1-2 answers, for each species.*

DO: Refer to the **Species Flier** if you need to check some points of the benefits.

When & Where to Plant Trees (7 min)

DO: Show “**Good vs. Bad Tree Plantations**” flier. Walk around and show to all farmers, make sure they can see well

SAY: Successful plantations were planted and cared for using recommendations like we are going to discuss today

ASK: Are you ready to do the work necessary to get a tree plantation like this (good) one? **(get the farmers to say YES!)**

ASK: When should you plant your tree seedlings to get the best chances of survival?

- SAY:**
- The ideal time to plant seedlings is right now!
 - Today we will only distribute seedling which are large enough and ready to plant, so plant them immediately. This is to allow them to get enough rain.
 - But if you have to wait sometime after taking these seedlings and before planting then make sure to:
 - Keep the seedlings in a shaded area protected from livestock by a fence
 - Water them every few days if it isn’t raining

SAY: The best locations to plant trees are:

- **Fields protected from livestock** or build a fence to protect the seedlings
- **Well-drained fields**
- **Infertile fields** - Deccurens is especially suited for these types of fields because it can do well in poor soils
- **On borders or in alleys of crop fields** - good use for Grevillea and Wanza. Make trees run from East to West.

- **In fields completely mixed with other crops:**
 - All the tree species can be grown interspersed with other field crops in the year 1 since they are small, though by year 2 the Decurrens trees will create too much shade and you will not be able to grow the other crop anymore
 - Possible to plant Wanza and/or Grevillea together with Gesho or coffee. Gesho and coffee can grow well in the shade of those taller trees
- **Nearby your homestead-** easier to manage. Gesho is recommended for this.

Spacing & Hole Preparation (10 min)

SAY: We recommend that you prepare for tree planting by:

- Select the best planting location for the seedlings. Make sure you picked good fields as we just discussed
- Clear away all weeds and other plants within a few meters of where you will plant the trees
- Dig your holes in advance and refill the holes with loose soil, all on the same day
- Do this hole preparation at least 2 days, but ideally up to 2 weeks before tree planting

SHOW and EXPLAIN the pre dug holes: Holes must be 30 cm wide and 30 cm deep. 30 cm can be estimated with two stretched out fingers.

DO: Show the **small vs. large hole** tree diagram page.

- Walk around and show to all farmers, make sure they can see well.

SAY:

- I know that many of you think this hole is too large and you might think I am crazy to suggest that you do the extra work to make such large holes.
- But digging such large holes is very, very important to increase your seedling survival rate! This is because
 - This gives a space for the young seedlings' roots to expand rapidly while there is still rain
 - Seedlings will have a strong root system that helps it to find soil moisture and survive during dry season
 - Seedlings planted in narrower holes will struggle growing early roots and are likely to die in the dry season

DO and EXPLAIN:

- **SAY:** I need 3 volunteers from you. 3 people will stand in 3 different locations that are 2 meters apart and dig holes using these tools. 3 of you will help take the soil out of the holes. The rest watch carefully. I will give instructions on what they should do.
 - As you begin digging, put the soil from the top 20 cm to one side. This is the more fertile top soil
 - As you dig deeper than 20 cm, and/or when you start to see a color change in the soil or more rocks, put that other soil to the opposite side. This is the less fertile soil
 - Measure the diameter of your hole and make sure it is 30 cm (2 hand widths). Use sticks for this
 - Measure the depth of your hole and make sure it is 30 cm as well
 - First put the fertile soil (from what used to be the top) back into the hole
 - Add compost into the hole and mix with the top soil well. Ratio must be 1:1. If not whatever you have is fine.
 - Then put the less fertile soil (from what was the bottom) on the top of the hole to make it generally even.
 - Put a stick in the center of the hole so that when you return at planting time then you'll know where exactly to plant the seedling
- **DO:** walk around and observe, point out mistakes loudly and correct them for the crowd to see.

DO: Have 1 volunteer try to insert a stick all the way into the ground in an empty field where no holes were dug, then do the same in the hole that was just prepared and filled.

ASK: What did you observe?

- *It is harder to insert the stick in field where we did not dig holes.*

SAY: this is a good example of why we need big holes for planting our trees. This shows that it is easier for roots to grow very fast in fields with holes than fields with no holes. This will allow for your trees to grow very fast!

SAY: Now you know how to properly dig a single hole to get the highest tree survival rate. But another crucial practice to get the highest survival and best tree growth is to plant your trees at the proper spacing, with wide enough space in between them

SAY: The proper recommended spacing varies by tree species. For the 4 species we are giving:

- **Decurrens:** 1m x 1m but can't get below 50 cm by 50cm
- **Grevillea:** 2 m x 2 m
- **Gesho:** 2 m x 2 m
- **Wanza:** 3 m x 3 m
- If you are intercropping trees with crops then you can plant with even wider spacing

DO: For each of the 4 tree species, 1 species at a time:

- Hold up 2 seedlings of the species and ask farmers to identify what species it is
- Give the 2 seedlings to a volunteer and ask them to place the seedling on the ground with proper spacing apart.
- Have the other farmers confirm if this is correct, if not them have them make corrections

ASK: Why am I recommending that you use wider spacing? What could be the benefits?

- *Avoid roots for competing for water and nutrients and some might be more likely to die or grow very slowly*
- *Trees that have wider spacing face less competition and thus can grow faster and have higher survival rates*
- *Also, trees that are close together have to compete for sunlight, so they grow taller and thinner.*
- *Trees that have wider spacing will grow wider, which can earn higher prices if they are grown for timber*

DO: Show the flier showing the **planting spacing comparison**

- Walk around and show to all farmers, make sure they can see well
- *Say the two fields are both Decurrens and were planted at the same time, side by side*
- *Ask the farmers which of the plantations they think would earn them more money at harvest*
- *Explain what the spacing between trees is in each picture*
- *Point out that in the picture with the narrower spacing the trees are very thin*
- *Point out that in the picture with the wider spacing the trees are thicker, with a wider circumference*

ASK:

- Who is convinced to try wider spacing? [have them raise their hands]
- Are any of you still not convinced to try wider spacing? [have them raise their hands]
- If you still don't want to plant with wider spacing, why not? [take 3-5 answers]

DO: Try to respond to the farmers concerns raised and convince them to try wider spacing

Tree Planting Practice (10 min)

SAY: Now we will discuss and practice tree planting itself

ASK: What time of day should you plant your seedlings?

SAY: You should plant:

- *On a cloudy day, if possible*
- *In the afternoon, after the heat of the day has passed*
- *Morning is not good, even if it is cool, because it will get hot shortly after planting. The seedlings are sensitive on the first day so this might hurt them*

- *Imagine if you left a newborn baby out in the sun all day!*

DO & SAY: I need 3 more volunteers now. These volunteers will plant trees in these dug holes following my instruction.

- Select a seedling to plant. Cut off any roots coming out of the bottom of the socket with sharp scissors or a knife
- Find the hole you already prepared and refilled, and make a small hole inside it large enough to fit the soil in your socket
- Cut open seedling's plastic socket carefully from the sides using razor blade and peel it away.
- **ASK:** Does anyone disagree and think that you should plant with the socket on? If so, why?
- **SAY** in response [only if someone disagrees]:
 - Termite damage question: Termites attack the stems above ground even more than the roots, so protecting the roots from termites won't help very much. There are better things you can do to reduce termite damage like spread ashes around the trees in a circle and make sure your trees get enough water
 - Keeping in moisture question: To grow well in the dry season the most important defense is a wide root system. If the socket is left on the root system will only grow downward and not wide. So in the end the socket will make damage from drought worse, not better
 - Removed socket in past and had bad experience: Maybe you didn't remove the socket properly. If you squeeze from the bottom and pop out the seedling this can cause problems. You must be careful to cut it open without damaging the roots and you must leave on as much soil as possible
- Try to keep all the soil around the roots
- Place carefully the seedling with its soil into the small hole you made
- Pack some extra loose soil around seedling base and made sure that it is firm.
 - Build a mound with the seedling at the center so that water will not collect around the base of the seedling, because this can cause the seedling to rot and die.

AFTER PLANTING

- **Immediately after planting**, water the seedling immediately but gently—use a watering can with a diffuser head if you have one.
 - If not, then you can pour the water on through your fingers to make it more diffuse and gentle. Use 30-40 mL of water per tree.
 - Watering immediately is needed even if it has been raining because the seedling has been weakened during distribution and transportation
- Put mulch around your seedlings to protect from high evaporation from strong sun to increase moisture



Early Management/care (15 min)

SAY: Now we need to take good care of these young seedlings for the next 2-3 months while they are weak.

- Early tree management of trees is the very important step after planting trees. It ensures that planted seedling to grow strong and increase their survival.

ASK: What happens to children that are not well nourished in the first 2 years of their lives?

- They will have stunted growth. They will grow to be short and skinny with slow brain development. It will also expose them to diseases and might also cause death.
- Similarly, with trees, if you do not perform these management activities, your seedlings will have stunted growth or die very quickly.

SAY: Our recommendations for early management are:

- Every week
 - Water the trees if there hasn't been enough rain. Don't just wait for rain.
 - Check fences are strong not to let livestock

- For the first month after planting, weed around your seedlings by hand or gently with hand hoe to avoid damaging roots
- Every month
 - After the first month after planting, weed consistently around your seedlings.
 - Check for insect damage, and if you have termites attacking the trees then sprinkle wood ash around the base of each seedling
 - If you observe any other damage, insects or pests you don't recognize, inform our FOs or DAs for support.
 - If you observe scales or aphid, boil 1-2 kg of leaves, bark or seed of the Neem plant (Kinin, Nim) together with 5 L water, let it cool, then spray it on and around your seedlings
 - Weed your seedling area to avoid any mice attacks. Build/strengthen your fences to protect from rabbits
- Near the end of the rainy season
 - Put grasses/mulch around the base of the seedling. When applying mulch, apply a circle around 50 cm wide around each seedling, but prevent the mulch from touching the base of the seedling directly (leave a 5-10 cm wide empty space), because otherwise this can increase the risk of rot of the seedling
 - If you are in a very dry area, and termites are a problem, use stone pebbles to put around your seedlings to retain moisture
 - Once the rain has stopped and it is dry season, dig small depressions around the base of each seedling to collect moisture
- Every 3-6 months
 - Add compost to around your trees to help them grow faster

Discuss as group: What else do you need to do to take care of these seedlings for the next 3 months? Do you agree with proposed steps? Let us discuss main barriers that might prevent you from doing this as a group? (*take 5-7 farmers answers and keep asking the wider audience for feedback on what has been said by other farmers*).

Potential concerns/barriers:

- *I do not have water resource around my crop field and can't water if it does not rain.*
 - *In these cases, make sure you apply enough mulch to cover the soil around your trees to keep moisture in*
- *It is busy time to do all this work*
 - *You should teach your wives/husbands, kids and other relatives available about the benefits and try to help out during busy times. Consider tree management is as important as crop management work. It is a long term investment. We have seen that some farmers that are richer grow and sell trees as an additional income.*

Review Questions (5 min)

ASK: What types of fields should you avoid planting seedlings in?

- Fields unprotected from livestock, waterlogged areas

DO and ASK: Show Decurrens seedling, ask- what species is this? What is it used for? What is the spacing needed?

- Decurrens, used for charcoal and soil improvement, spacing 1 m x 1 m

DO and ASK: Show Gesho seedling, ask- what species is this? What is it used for? What is the spacing needed?

- Gesho, used for making alcohol, spacing 2 m x 2 m

DO and ASK: Show Grevillea seedling, ask- what species is this? What is it used for? What is the spacing needed?

- Grevillea, used for timber, spacing 2 m x 2 m

DO and ASK: Show Wanza seedling, ask- what species is this? What is it used for? What is the spacing needed?

- Wanza, used for very valuable timber, spacing 3 m x 3 m

ASK: What are the benefits of using wider spacing between all seedlings?

- *Reduce competition, increase survival rate, trees with grow with wider circumference, you can probably earn higher prices per unit land area*

ASK: What size should holes be and why?

- *They need to be very BIG! 30 cm x 30 cm*

- *This will make early root growth easier and increase tree survival rate during the dry season*

ASK: Is it OK to plant the seedlings with socket still on?

- No! This will make roots grow poorly

ASK: What are some crucial early management steps you can take to increase survival of your seedlings?

- Remove all weeds around the seedlings at the beginning and then regularly to prevent competition
- Water the seedlings after planting and then any days when it does not rain
- Build a mound around base of seedling to encourage drainage, prevent standing water
- Protect from livestock with a fence or a “tent” structure

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Small planting holes



At planting

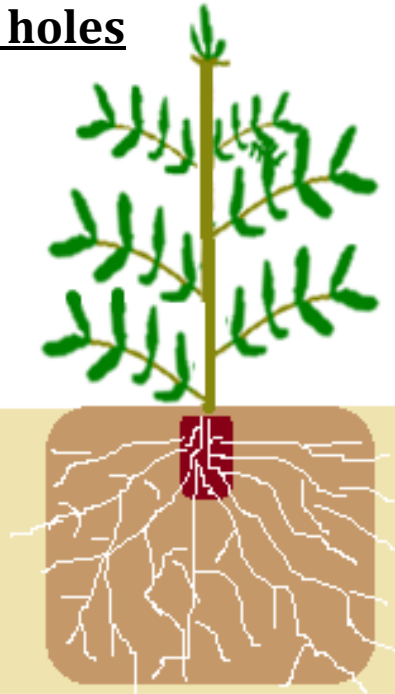


2 months later

Larger planting holes



At planting



2 months later