




# Tree planting (Aranya Agricultural Alternatives method)

Plant trees to:

- Rejuvenate soils, • Harvest water, • Develop life-friendly microclimates, • Allow agroforestry and increase yields, • Enhance biodiversity,
- Etc.

 Difficulté Facile

 Durée 15 minute(s)

 Catégories Alimentation & Agriculture

 Coût 0 EUR (€)

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## Introduction

## Acknowledgements

Trees are so important for so many reasons. They play an active role in the water cycle, in protecting and building soils, in hosting and enhancing biodiversity, in sequestering carbon, in providing biomass and so much more. The impacts of deforestation are well-documented: erosion, soil salination, soil acidification, desertification... which lead to water scarcity, famine, conflicts, migrations... Even though most of the permanent cultures and tribes revered trees as brothers and sisters “modernity” and “progress” encouraged and keeps on supporting forest clearing (facts not debated here).

# Our solution and its expectable benefits

Plant trees to:

- Rejuvenate soils,
- Harvest water,
- Develop life-friendly microclimates,
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- Enhance biodiversity,
- Etc.



## Matériaux

- Parts:
  - Not Applicable;
- Consumables:
  - If available, soil, compost and/or manure (e.g. topsoil from other grown trees),
  - Water,
  - Mulching material (corn stalks, rice hulls, hay, straw, dry leaves, Chopped Rameal Wood (CRW, a.k.a. "Bois Raméal Fragmenté" (BRF)) ...);

## Outils

- Tools (see FAQ & Troubleshooting? For other alternatives):
  - (1) Spade / shovel,
  - (1) Bucket,
  - (1) Wheelbarrow (eventually),
  - (1) Water can (eventually);

🌀 Tree planting preparation (Sadhana Forest method)

🌀 Clay-pot-irrigation system (Aranya Agricultural Alternatives method)

## Étape 1 - Preliminary requirements

- Define the plantation zone,
- Make sure that your sapling is ready for transplantation,
- Make sure that weather conditions will be favorable for the young tree to grow (avoid dry season peak),
- If applicable, build your clay-pot irrigation system,
- If applicable, build your bottle-irrigation system.

Feel free to adapt the procedure to your environment.

## Étape 2 - Preliminary concerns

### “Life requires attention!”, sapling basic needs

Saplings have some basic needs:

- Timing: keep in mind that saplings under one year old have very active root systems; the older the sapling, the lazier its root system.
- Water: make sure that you irrigate your tree in accordance with its needs. Very few trees love to have their feet in the water; some trees need more water, some less. Collect information, observe and interact with your sapling (and tree). Mulching and pitcher irrigation are recommended. See “FAQ & Troubleshooting?” for more information about watering.
- Nutrition: soil, compost, manure, humus, ...
- Services: shade might be one need; protection such as fencing might be another.

## Nursery pockets

INFO Your saplings usually grow in pockets. Sapling pockets have holes, usually 16 holes. Those holes are important for drainage and oxygenation (especially the hole on the bottom of the pocket).

- 💡 You do not want to use plastic pockets in your nursery? Feel free to use coconuts!  
Dry the coconut. Moisture might harm your sapling; if you dry the coconut you will remove the cream inside the coconut and avoid excess moisture.  
Cut four grooves on the coconut for drainage and oxygenation. Eventually, add three holes.

## Étape 3 - Remove the sapling from the pocket


- 👉 When you plant the sapling, do NOT bury the collar. When you plant the sapling, make sure that the collar is located at the same level as the ground. The collar is on the stem of the sapling. The collar is usually located at the same level as the soil-air interface in the pocket.

- 👉 Do NOT use cutting devices to remove the pocket (e.g. scissors, knife, etc.). Remove the pocket with care. Reuse the pocket! One can reuse a pocket at least three times. Remember the great R's? refuse, reduce, reuse, repair, recycle?


1. Observe the sapling to identify the collar level,
2. Turn the sapling with the pocket upside down,
3. Hold the stem of the sapling to remove the pocket,
4. Use the bucket to soak the pocket in water,
5. Clean the pocket in the bucket;


- 📘 The pocket holds small roots from the sapling. Those small roots contain a lot of effective microbes. We will reuse the cleaning water to irrigate the young tree.

## Étape 4 - Plant the sapling

 When you dig the pit to plant the sapling and remove the soil and dirt from the pit, do NOT mix the soils and dirt! Make different piles for the different horizons of the material you dig out. The life is more active in the topsoil. Thus, when you plant the sapling, the topsoil should be added on top of the pit to preserve the life of the topsoil. When planting, make sure that you add the soil in reverse order compared to removal.


1. Use the shovel to dig a pit at the plantation zone,
2. If you have a clay-pot-irrigation system or bottle-irrigation system, install the rope of the irrigation system around the root system of the sapling,
3. Install the sapling in the pit,
4. Add the soil from the pit in the pit: make sure that you add the soil in reverse order compared to removal (see instruction and information above),
5. If available, add soil from mature tree, compost and/or manure on top of the topsoil,
6. Use the water in the bucket to irrigate the young tree,
7. Press the soil around the young tree,

 The size of the pit: the pit should be big enough for one to fit the sapling in her/his two hands. Usually, there is no need for more effort than that. If the soil is severely degraded and/or the ground highly compacted, feel free to dig a bigger pit and add more soil and nutrients.


 We add the compost and/or manure (nutrients) on top of the topsoil for it to sink in the ground (with water from irrigation / rainfall).

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## Étape 5 - Mulch

 Do NOT cover the stem with mulching material. Leave the stem of the young tree free from mulching material. Mulching material heats up (especially green material) and might raise the temperature of the tree and harm the young tree.

1. Add up to one foot (30 centimeters) of mulching material around the young tree,
2. Make sure that you leave the stem of the young tree free from mulching material: one fist wide without mulch should be ok (see instruction and information above).

 The reason why green mulching material heats up so much is due to its high nitrogen content. Prefer brown mulching material to green. Ideally, use a 50%/50% mix of brown and green mulching material.

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## Étape 6 - Add water

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## Étape 7 - Frequently examine the moisture level

1. If you use a bottle-irrigation system:
  1. Loosen the cap to open the bottle-irrigation system,
  2. As you add water in the bottle, measure the amount of water added in the bottle-irrigation system:
    1. If the bottle was empty, increase the frequency of your examinations,
    2. If the bottle was not empty, reduce the frequency of your examinations;
  3. Tighten the cap to close the bottle-irrigation system;
2. If you use a clay-pot-irrigation system:
  1. Remove the clay plate from the clay pot to open the clay-pot-irrigation system,
  2. As you add water in the clay pot, measure the amount of water added in the clay-pot-irrigation system:
    1. If the clay pot was empty, increase the frequency of your examinations,
    2. If the clay pot was not empty, reduce the frequency of your examinations;
  3. Install the clay plate on the clay pot to close the clay-pot-irrigation system:
3. Else:
  1. If the moisture level is low, add water and increase the frequency of your examinations,
  2. If the moisture level is high, reduce the frequency of your examinations.

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## Notes et références

# FAQ & Troubleshooting?

## This procedure seems so simple! Is it applicable?

There are as many tree planting procedures as tree planters... What I understand is that sometimes, some people over-complicate procedures and stick to tricky standards without really understanding the reason behind those standards. What we learned during our PDC is to observe and interact with nature. As Narsanna Ji told us: "no one teaches a seed how to grow.", same goes for trees! Trees grow in forest without engineered standards to support their growth. No need to overcomplicate things here. Nevertheless, your environment might be severely degraded and not friendly to your young tree... You might want to consider succession and pioneers: what can grow first in your harsh environment and benefit to other species later? Feel free to read our blogpost about the beautiful reforestation effort at Pebble Garden in Auroville, India to acknowledge how the grow soil and transformed a desert in a tropical evergreen forest without any external input, with nature observation. If your environment is severely degraded, you might want to prepare the tree planting zone. Feel free to refer to the procedure that Sadhana Forest recommends for severely degraded areas in Dry Tropical climates .

## What about watering?

We recommend bottle irrigation or clay pot irrigation. Refer to the procedure about clay pot irrigation system for more information about this solution. Refer to the "Tree Planting Preparation (Sadhana Forest method)" procedure for more information about bottle-irrigation system.

## Transplantation

Bear in mind that not all trees can be transplanted. Ask you local tree lover / tree expert for advice. In the nursery, we recommend you plant a lot of seeds in beds to select the best saplings for transplantation in pockets. This should allow you to increase the survival rate of young trees and, this should allow you to (re)use less pockets.

## Go further...

Please share with us with your remarks, comments, improvements, achievements, etc.

*"Reforestation of the earth is one of the few tasks left to us to express our humanity."* (D. Holmgren)

DIY tutorial "Tree planting preparation (Sadhana Forest method)" procedure: [Tree planting preparation \(Sadhana Forest method\)](#)

DIY tutorial "Clay pot irrigation system (Aranya method)": [Clay-pot-irrigation system \(Aranya Agricultural Alternatives method\)](#)

Blogpost about Pebble Garden: <https://sustainable-autonomy.weebly.com/blog/discover-auroville-pebble-garden>

Blogpost about the Permaculture Design Course at Aranya Farm: <https://sustainable-autonomy.weebly.com/blog/pdc-at-aranya-farm>

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