


Climate Sustainability Leadership

By: Obasanjo
Fajemirokun





“We are the first generation to feel the effect of climate change and the last generation who can do something about it.”

Barack Obama, Former US President



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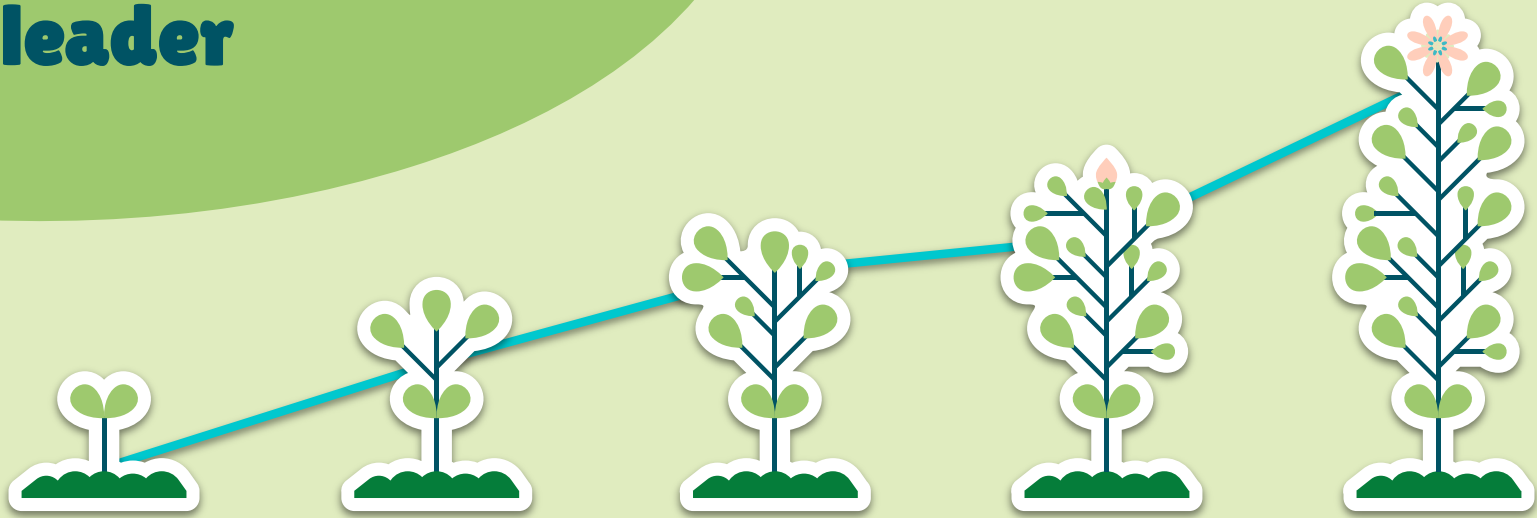
What is 'sustainability leadership'?



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Sustainability leadership is a process of influence that delivers direction, alignment and commitment, and aims to address social, environmental and economic issues to create a better world.

Six Steps in becoming a Sustainability leader





1. Have a worldview that is characterized by being systemic and think long-term.



2. Build network & Collaborate



3. Have good knowledge of the issue you are addressing.





4. Exercise influence without authority.

**5. Recognize the
importance of
leading yourself first.**





**Think
Green**

Thank You!

Do you have any questions?

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Location Mapping and Survey Conducting

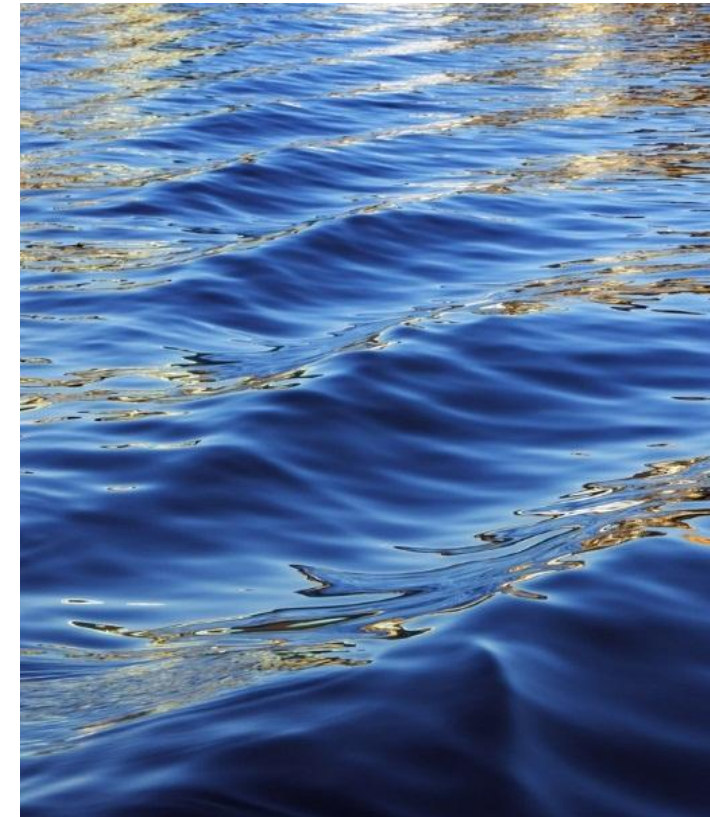
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Project Development Coordinator
Green Impact International

POP NIGERIA PROJECT
Physical training/workshop for participants in
Ogun state

27th August, 2021



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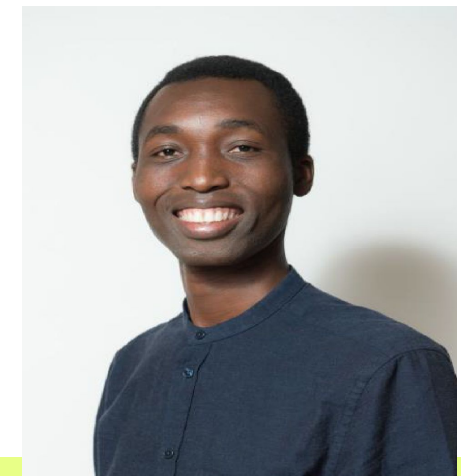
WHO WE ARE

Our primary aim is to create a movement of environmentally conscious individuals to participate in climate change advocacy, environmental restoration and sustainable development projects.

Our work takes the form of tree planting campaigns, eco smart orientation programs, climate change education, public awareness and actual practical engagement through volunteering and capacity enhancement.

Green Impact International is also registered as a Canadian non profit in order to learn best practice as to contribute to the global goal of achieving a sustainable environment and at the same time build a partnership platform to support the extension of our programs both in Africa and in Canada

Bamidele Oni is the Founder and Executive Director of Green Impact International



LOCATION MAPPING AND SURVEY

- In planning a project, one of the key features or main questions to consider and answer is the geographical location to site the project
- This gives rise to
- **location mapping** and
- **survey conducting**





Location Mapping and Survey

The **OBJECTIVE** of your project determines where you want to site the project



It answers the following questions:

- Why are you carrying out the project?
- The need to carry out the project in a particular geographical location(s) i.e. Does the location need/suit the project?





DEFINITIONS

Mapping

- To make a survey of for or as if for the purpose of making a map
- To plan in detail

Survey

- To determine and delineate the form, extent, and position of (as a tract of land) by taking linear and angular measurements and by applying the principles of geometry and trigonometry
- To survey is to gather information on important features/properties/objects that are important for a project in a land area or population





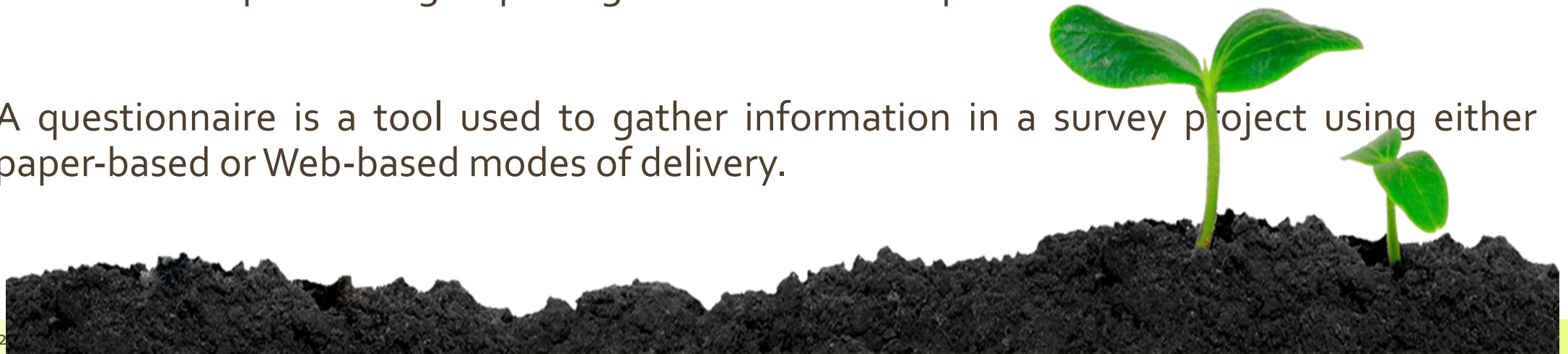
DEFINITIONS

Community mapping - It might be defined as local mapping, produced collaboratively, by local people and often incorporating alternative local knowledge

Community Mapping (sometimes called asset mapping) is all about involving residents in identifying the assets of their neighbourhood, looking at opportunities and creating a picture of what it is like to live there.

Survey research or a survey project denotes the process of gathering information from members of a particular group using an interview or a questionnaire.

A questionnaire is a tool used to gather information in a survey project using either paper-based or Web-based modes of delivery.





TYPES OF MAPPING

- 1. Ground mapping - A basic mapping method that involves community members drawing maps on the ground from memory using available materials, such as plants, rocks or household tools.
- 2. Sketch mapping
- 3. Transect mapping – A spatial cross-section of a community, depicting geographic features (e.g. infrastructure, local markets, and schools) as well as land use types and vegetation zones observed along an imaginary line. Activities involve questioning community members and walking and mapping transects
- 4. Scale mapping





TYPES OF MAPPING

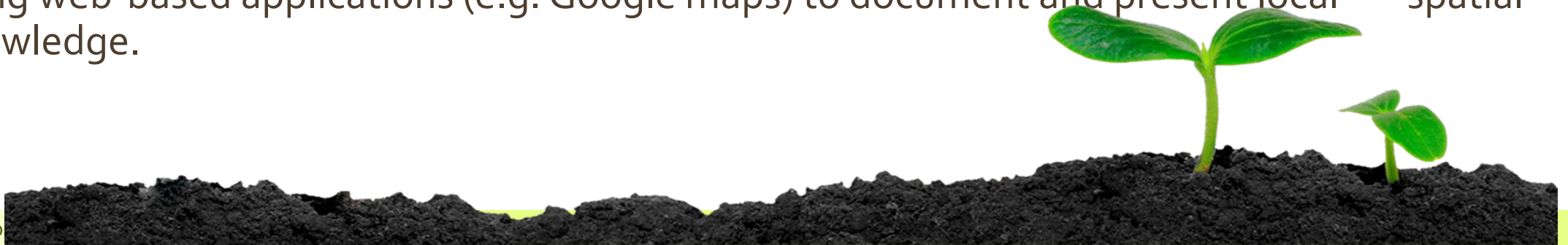
5. Participatory 3-D modelling (P3DM) – are stand-alone scale relief models created from the template of a topographic map.
6. GPS mapping – Global Positioning System (GPS) is a satellite based positioning system. A GPS receiver is carried to a position in the field and used to capture an exact location on the earth using a known coordinate system such as latitude and longitude. Data are stored in digital format.
7. Using aerial and remote sensing images – Aerial photography and remote sensing involves gathering pictures (often referred to as images if they are in digital form) from about the earth's surface using cameras on airplanes and satellite sensors from space.



TYPES OF MAPPING





8. Multimedia mapping – Interactive, computer based maps that link digital video, photos and written text with maps. They can be used to communicate complex, qualitative local knowledge related to the landscape.
9. Participatory geographic information system (PGIS) – are computer based systems that capture, manage, analyse, store and present geo-referenced spatial information. They include spatial data management tools that can work with aerial photographs, satellite imagery, Global Positioning Systems (GPS) and other digital data.
10. Internet-based mapping – is the newest arena for participatory mapping initiatives. Developed (and some developing) countries are seeing an explosion of communities using web-based applications (e.g. Google maps) to document and present local spatial knowledge.





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STEPS INVOLVED IN LOCATION MAPPING AND SURVEY CONDUCTING



• 1. Plan –

Think about questions such as these:

- How large is the target area in square kilometres? Size
- How many people live there? Human population
- How many buildings and roads are in the area?
- What will be the main challenges of mapping this area?



• 2. Objective –

• 3. Community entry – orientation about project for them to embrace it

- To carry out a project, you should have made an alliance with relevant authorities like government – ministry in charge (Ministries of Agriculture; Town planning, Survey; Youth, Women & Culture), community leaders, and management of the organization and so on



• **4. Site selection –**

- based on objective involve members of the community for sustainability
 - What area should be mapped?
 - What objects are within that area?
 - What attributes to collect about these Objects?

• **5. Focus on specific features –** take note of key features

- e.g. tree planting: land topography, nature of the soil, depth, source of water, waste collection – not close to residential area or source of water, recycling machinery

• **6. Layout using mapping tools -**

- pegs, line (rope), GPS – some projects require some particular altitudes, Survey tools – theodolite

• **7. Project execution**

• **8. Evaluation/Assessment**





**THANK YOU
FOR
LISTENING**



Effective Tree Planting and Maintenance

Delivered by Dr. (Mrs) J.A. Yisau

INTRODUCTION

Why should we Plant trees?

- ▶ Understanding the degree to which trees actually maintain life on our planet is critical to our survival.
- ▶ Without trees, human life would be unsustainable. We need trees to be alive because our life depends on the availability of air, water and food.
- ▶ There are a lot of benefits attached to tree planting which ranges from getting clean air, production of healthy soil, carbon sink, control noise pollution.
- ▶ Also, our trees and forests are rapidly disappearing at an alarming rate owing to deforestation, rapid population growth, rapid economic development, industrialization and vehicular emission which has increased urban pollution affecting air, water and land.

WHAT IS TREE PLANTING

- ▶ Tree-planting is the process of transplanting tree seedlings, generally for forestry, land reclamation, or landscaping purpose.
- ▶ However, tree planting is much more complicated than it seems (Pedro and Karen, 2020)
- ▶ Well-planned tree planting projects can be a valuable intervention to address some of the most critical challenges of our time, such as mitigating climate change, conserving biodiversity and providing food, wood and income to small landowners (Holl and Brancalion, 2020).
- ▶ The number of trees planted should not be seen as an end goal.
- ▶ Rather, tree planting is a means to achieve clearly specified goals and should be considered as part of a multidisciplinary decision-making process that thoroughly evaluates trade-offs and uncertainties (Chazdon and Brancalion, 2019).
- ▶ A growing number of initiatives at global, regional and national scales propose to plant millions, billions or even trillions of trees as simple solution to resolve complex environmental problems (Pedro and Karen, 2020)

DEFINITIONS OF TERMS

- ▶ *Forest*—An ecosystem dominated by trees, in which tree composition and structure drive most of the functioning of the ecosystem (FAO, 2012).
- ▶ *Forest and landscape restoration*—A planned process that aims to regain ecological functionality and enhance human well-being in deforested or degraded landscapes (Gann et al., 2019).
- ▶ *Mixed-species plantations*—Planting two or more tree species across a targeted area. It can include many tree species (e.g. restoration plantations in high-diversity forest ecosystems) or only two species (e.g. many mixed plantations for productive purposes; Liu et al., 2018).
- ▶ *Natural forest regrowth* (also referred to as passive restoration or natural regeneration) —An approach to restoration that relies on spontaneous increases in biota without direct reintroduction after the removal of degrading factors alone (Gann et al., 2019).
- ▶ *Reforestation*—Planting or seeding trees on land that was previously forested (Gann et al., 2019). This intervention may be undertaken as part of forest restoration or for specific uses such as timber production, carbon storage or agroforestry.

DEFINITIONS OF TERMS

- ▶ *Afforestation*—Planting or seeding trees on land that was not previously forested (FAO, 2012)
- ▶ *Agroforestry*—Trees are planted and/or regenerated in association with agricultural crops and pastures on the same land and at the same time (Liu et al., 2018)
- ▶ *Assisted regeneration*—A restoration approach that focuses on actively harnessing any natural forest regrowth capacity of biota remaining on site or nearby (Gann et al., 2019)
- ▶ *Degradation*—A level of deleterious human impact to ecosystems that results in the loss of biodiversity and simplification or disruption in their composition, structure and functioning, and generally leads to a reduction in the flow of ecosystem services (Gann et al., 2019)

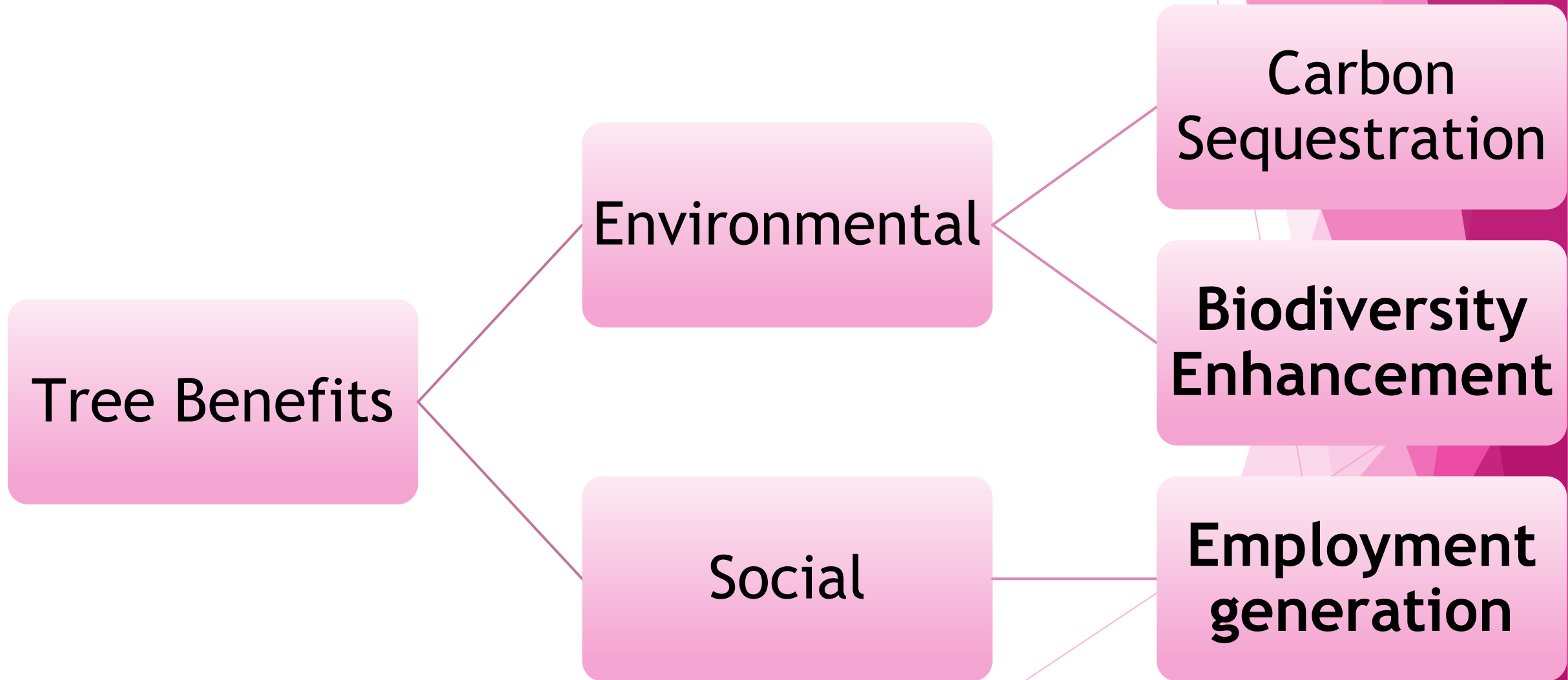
DEFINITIONS OF TERMS

- ▶ *Restoration*—The process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed (Gann et al., 2019).
- ▶ *Tree planting*—The action of establishing trees in a targeted area, which is usually achieved by introducing nursery-grown seedlings, yet other planting stocks such as seeds or cuttings can also be used
- ▶ *Success*—Achieving pre-set goals and quantifiable objectives for tree planting projects. Tree planting success is then a context-dependent, value-laden term, that will be determined by the association of stakeholder's expectations with project performance evaluated by assessing whether pre-defined, quantifiable objectives have been achieved

GUIDELINES TO ACHIEVE SUCCESS IN ANY TREE PLANTING

- ▶ (a) first addressing the underlying drivers of deforestation;
- ▶ (b) integrating decision-making across scales from local to global;
- ▶ (c) tailoring tree planting strategies to clearly stated project goals and planning, adaptively managing and evaluating success over a sufficiently long timeframe;
- ▶ (d) focusing on the forest ecosystem as a whole, and not just the trees;
- ▶ (e) coordinating different land uses and
- ▶ (f) involving stakeholders at all stages of the planning process

THE GAINS



Tree Benefits

Environmental

Carbon Sequestration

Biodiversity Enhancement

Social

Employment generation

TREE BENEFITS

Stimulation of local economy

- **Multiplier effects**
- **Changed soil physical and chemical properties**

Food security

- **Herbal Medicine**
- **Diversification in Agriculture**

Trees as service-providers

- **Trees as fodder for animals**
- **Energy, shelter and structure supply**

TREE BENEFITS

Control Noise Pollution

- **Low Storm
Water
Runoff**

Produces Oxygen

- **Cleans the
Air**

Acts as Windbreaks

- **Fights Soil
Erosion**
- **Increases
Property
Values**

WHAT TO PLANT (CHOICE OF SPECIE)

- ▶ The success of plantation forestry in the first place depends in the judicious selection of tree species to be grown under a given set of conditions.
- ▶ This is important because no amount of attention given to nursery operation and tendering operation can overcome the mistake of wrong choice of specie

CHOICE OF SPECIE

Suitability of that specie for the object of management (Intended functions of the trees at the site)

Closeness of correlation between site factor and silvicultural requirement of that particular specie

Effect of particular specie upon site (Can the tree perform well in the soil type and soil conditions at the site for urban centres?) (Camirand, 2002)

Adaptability of the specie to the desired silvicultural system

Market demand (Forest Plantation)

Cost of regeneration (And maintenance cost)

How much space (above and below ground) is available for the tree?

How much water will the tree require or tolerate?

Scale and rate of plantation development

Finance

The rate at which a plantation programme proceeds inevitably and primarily depend on, the initial availability and continuity of fund.

- The heavy reliance on external funding makes orderly development and steady expansion uncertain.

Land Availability

The need to acquire or lease land for plantation to allow the legal title and survey to be done is important for regular plantation operation to proceed unhindered.

- On the other hand, obtaining and the use of the customary owned land can be problem in maintaining a steady plantation programme.

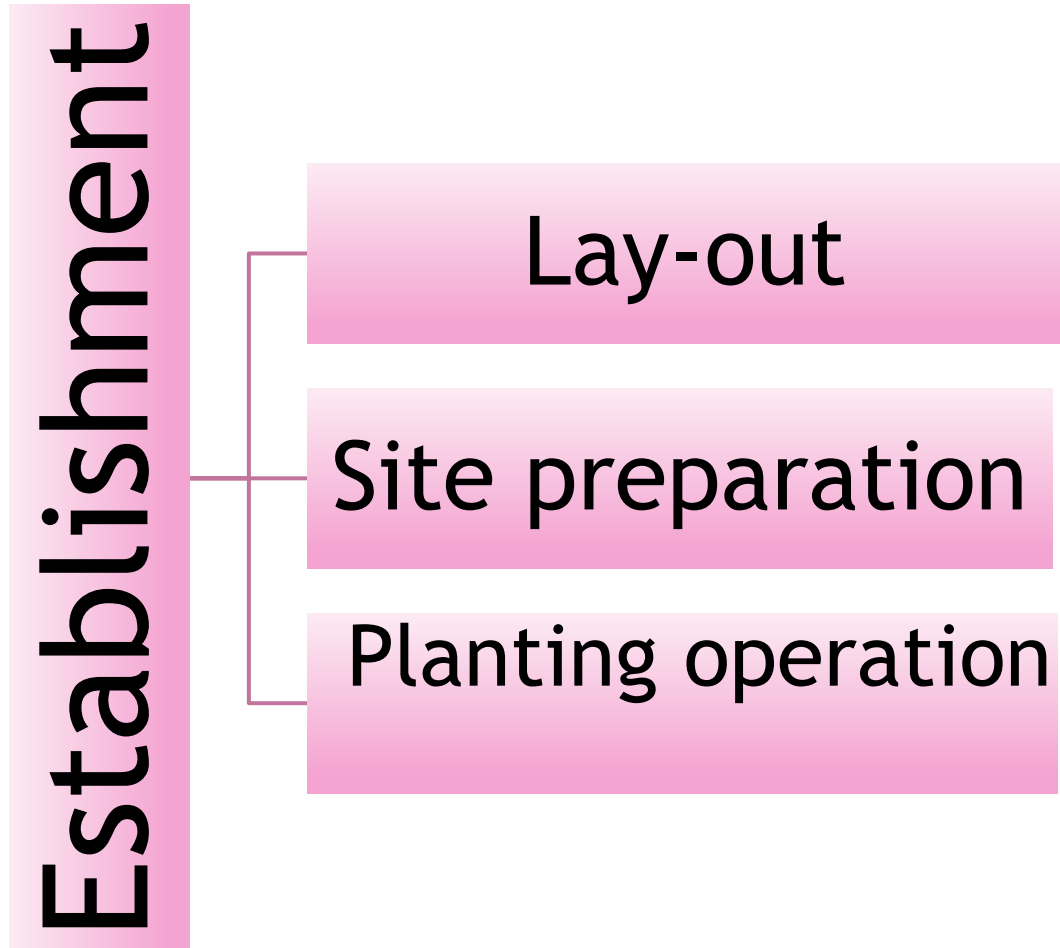
Labour

Remoteness of forest plantation operation makes it unattractive such that most employees live in the forest for few months before the forest operation commences

- Also, is the inability of labour force to adapt to job discipline.

Infrastructural provision

HOW TO ESTABLISH FOREST PLANTATION



PLANTATION ESTABLISHMENT - Lay-out

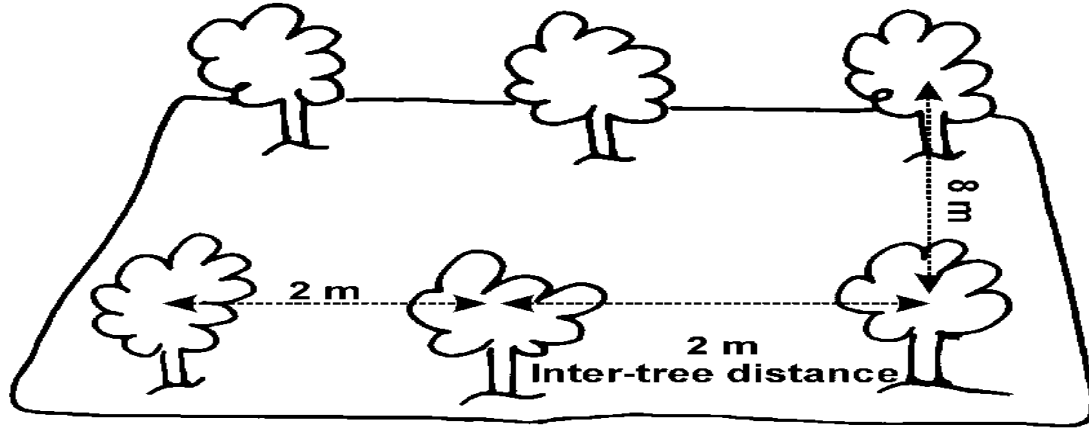
spacing decision

area survey and marking
operation

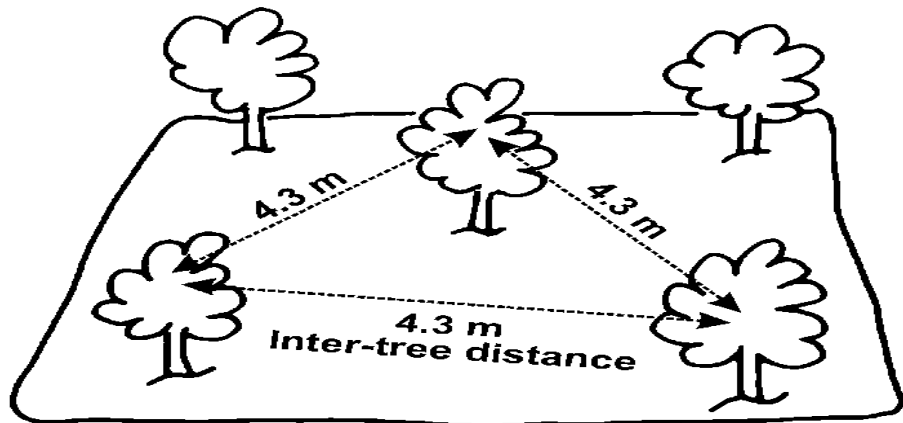
Lay-out

establishment of firebreak line
around the forest plantation as
boundary protection line

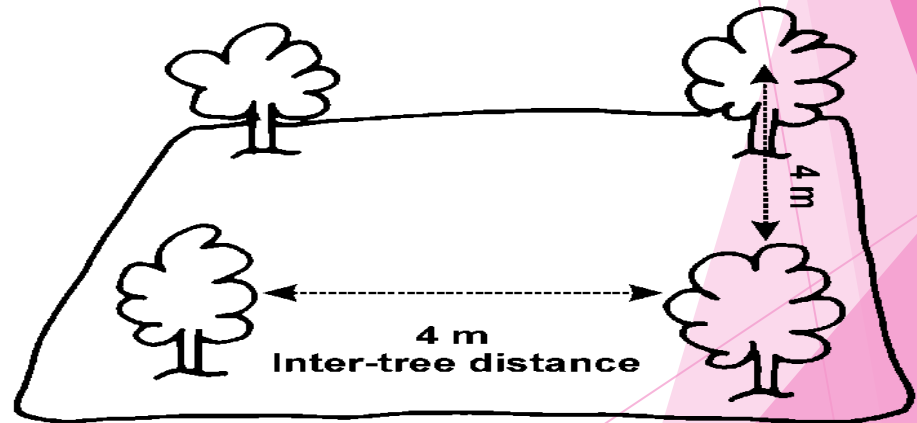
mapping the location of the
plantation



Rectangular spacing



Triangular spacing



Square spacing

CORRELATING SPACING TYPES TO NUMBER OF SEEDLINGS

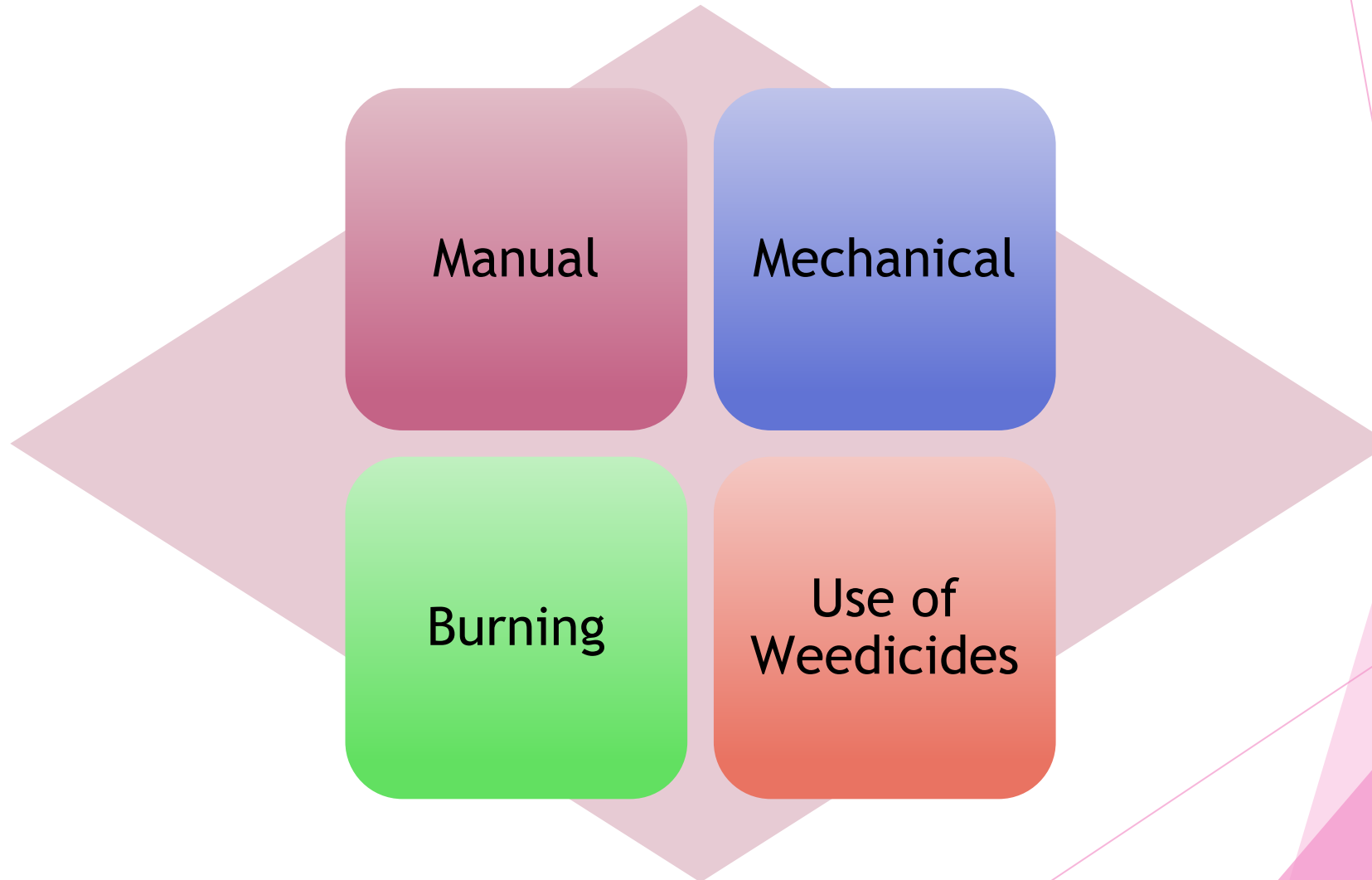
Spacing type	Formula	Example	
		Spacing	No. of seedlings
Squared	$10,000 / (R \times P)$	4 m x 4 m	625
Rectangular	$10,000 / (R \times P)$	2 m x 8 m	625
Triangular	$10,000 / (R \times P)$	4.30 m x 3.72 m	625

R= distance between tree; P = distance between line
Triangle with 3 equal sides (R), P= height of the triangle ($R \times 0.866$)
(Camirand, 2002)

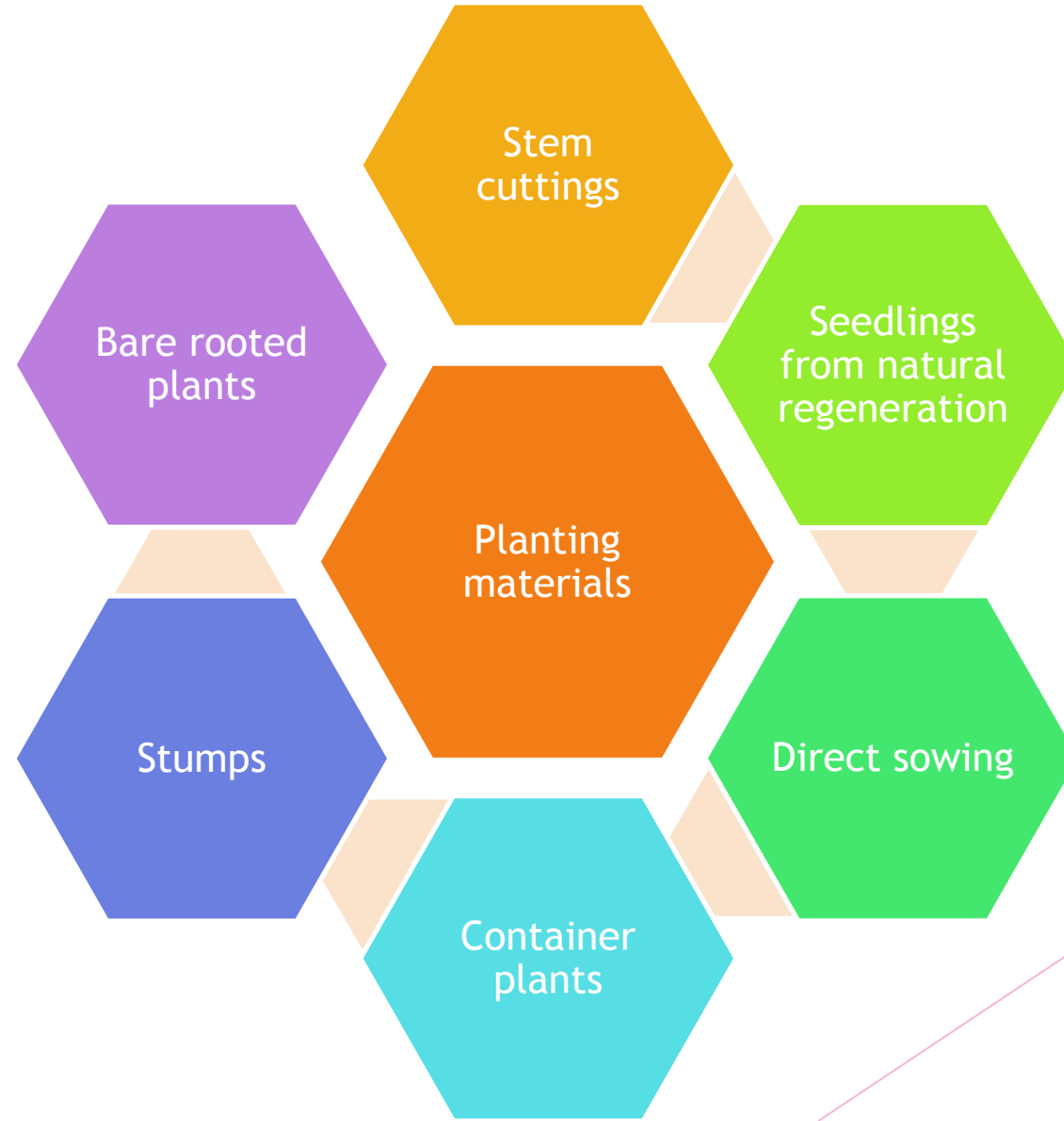
Site preparation

- ▶ Site preparation comprises two main field activities:
- ▶ removal of the existing vegetation to reduce and/or eliminate competition and,
- ▶ ground preparation to improve water retention and provide optimal soil conditions for the plantation's initial phase

Four methods of vegetation clearance



PLANTING MATERIALS



WHEN TO PLANT

- ▶ Correct timing particularly with respect to lifting of plants is very critical to success a planting operation.
- ▶ Evapotranspiration stress at planting is one of the main causes of initial death.
- ▶ To minimize plant stress and possible death, seedlings should be planted
 - ▶ when the soil moisture level has returned to field capacity, ie, after approximately 100 mm of steady rain has fallen;
 - ▶ during cloudy days (with very high humidity)
- ▶ Use or employ balance seedling (seedling of high morphological and physiological grades)
 - ▶ using well-watered seedlings (Evans, 1992).
- ▶ planting should be done during the short rainy season (April, May, June) and long rainy season (September, October, November)

Causes of failure in Tree Planting

Inadequate site preparation

Poor planting stock plant

Careless handling of planting stock

Bad/wrong planting techniques

Over exposure during transportation and a consequence of physiological shock

Wrong choice of specie

General rules in planting operation

For container seedlings, remove impervious materials before planting

Dig a small (slightly bigger than the container) planting pit with a hoe or spade or

Insert the root into the soil up to the root collar

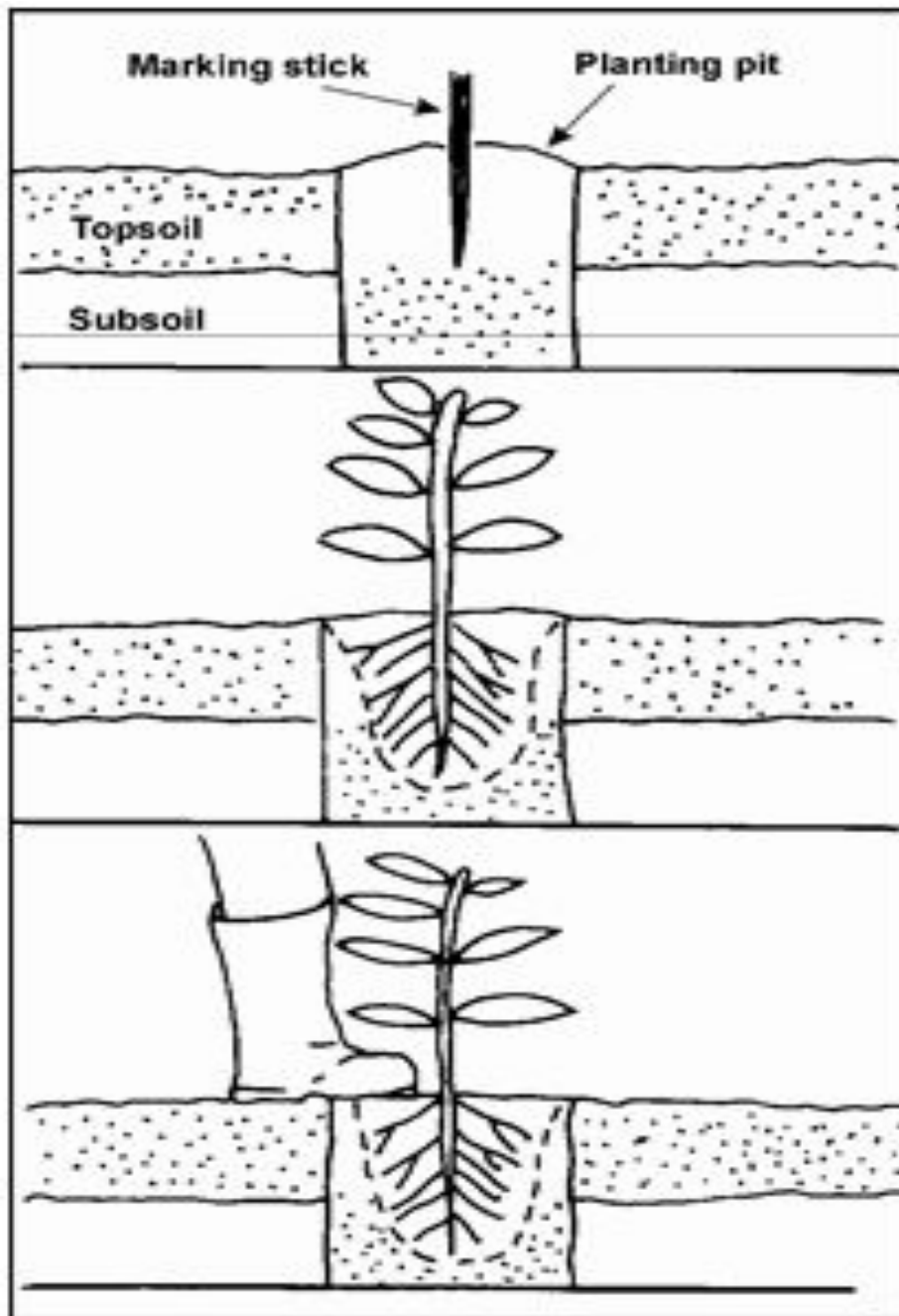
Fill back with soils around the root and must be firmed either by heeling or knot pressure

While inserting in the soil, avoid damaging roots either by breaking or crushing

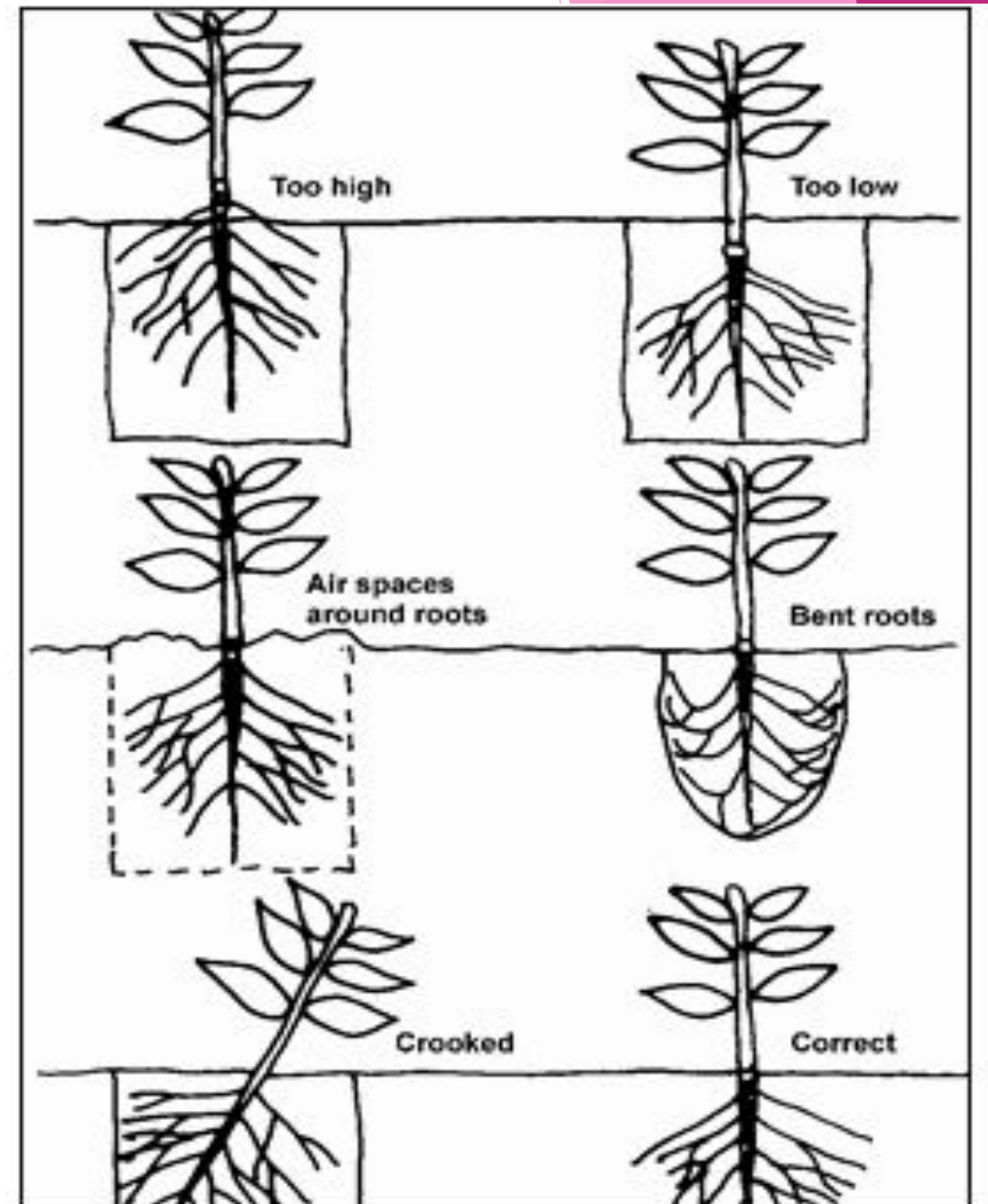
Stumps should not be forced into the ground

On dry site, the planting position must maximize water retention.

A: Method of planting a tree seedling



B: Correct position of the seedling and seedling roots in planting hole



(Camirand, 2002)

Maintenance operation for Tree Planting



Maintenance operation for Tree Planting

Weeding: The amount of weeding required in any given plantation vary with soil, season, condition of site when planted, size of the plant stock and the degree of tolerance of the spp. Herbicides and Arboricides.

Beating-up: If the initial seedling survival rate is too low, the most important rule is to carry out replanting (beating up) within the first year of plantation establishment. , ie, the following planting season, to ensure minimum variation of plantation ages.

Cleaning: After beating up and weeding of the plantation, the next is usually cleaning. This is carried out in order to prevent desirable tree at sapling stage from been suppressed by undesirable spp.

Climber Cutting: Herbaceous climbers are problems only at the early of stages of plantation, while the woody climber can be a terrible nuisance both in binding and checking of the stem, damaging the crown.

Fertilizer Application: . To correct a specific deficiency of nutrient elements, To establish a crop on hitherto marginal soil 3. To stimulate growth of the tree

Fire Tracing: This is one of the methods of preventing forest fire. Fire tracing necessitates the sub-division of the forest such that when fire occurs, it will be possible to confine it and prevent its spread.

Maintenance operation for Tree Planting

Thinning Methods

- Low thinning
- Crown thinning/high thinning
- Selective thinning

Pruning

- Pruning is the removal of light and dead branches along the lower bole of a standing tree to improve wood quality in plantation where the rotation age is shorter
- To improve wood quality and to allow trees to grow a long period, pruning must be done early

Pruning Methods

- Low pruning: create easy access for thinning operations, produce knot-free timber, provide fodder, leaf mulch, fuelwood, etc.
- High pruning: The most promising trees selected for final harvest are pruned, approximately 200
- trees/ha, and is usually done at same time as thinning

CONCLUSION

- ▶ Planting trees has a lot of benefits to human life, animals and the ecosystem at large. Hence, the need to plant trees.
- ▶ There are however some challenges which must be subdued for any tree program to be successful. Going forward, some major factors must be in place in order to mitigate these challenges. These are
- ▶ National policy on tree planting that will protect the trees and the planters
- ▶ Nursery establishment for the production of quality nursery stocks useful for planting.
- ▶ Proper selection and breeding of quality tree species with good characters such as early fruiting, fast growth, straight bole e.t.c.
- ▶ Involvement of the indigenous people during tree planting will enhance the rate of protection and give them a sense of belonging in the project.

People who will not sustain trees will soon live in a world which cannot sustain people’.
Prof. Bruce Nelson

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THANK YOU

FOR LISTENING

Self Esteem & Leadership In Climate Change Adaptation

a. Self Esteem

b. Coping with CLIMATE CHANGE ANXIETY

c. Leadership



Coach Catherine Asapokhai-Utsalo
Certified Professional Leadership/ Wellness coach

The Importance of Believing in Yourself

Not only does it simply feel good to believe in yourself, self-confidence and self-belief also bring about other desirable benefits.

Research has shown that those with high self-confidence enjoy:

- Better overall health, because they deal with stress and difficult emotions better.
- More time for their families and friends, since they tend to set healthy boundaries and leave work at the office.
- Better relationships thanks to **healthy** **boundary-setting** and ability to focus on improving relationships.
- Improved performance at work through better ability to

In addition to these benefits, Dr. TC North lists 12 benefits that come from boosting your self-confidence.

- **Improved coping and thriving under stress**
- Better ability to influence and persuade others
- More leadership and executive presence
- Increased positive attitude
- Enhanced sense of feeling valued (by yourself and probably others as well)
- Improved performance at work
- Being perceived as more attractive
- Reduced negative thoughts
- More fearlessness and less anxiety
- Greater freedom from **social anxiety** in particular
- **Increased energy and motivation**
- Greater levels of happiness

Common Characteristics of Self-Confident Individuals

It's pretty easy to spot self-confident people; in addition to signs like the ones above, there are plenty of other signs that indicate a person is confident and self-assured, including:

- People who are self-confident do what they believe is right, even if they are mocked or criticized for it.
- They are more willing to take risks and “go the extra mile” to get what they want.
- They are able to admit when they've made a mistake and learn from their mistakes.
- They wait for others to congratulate them on their accomplishments instead of bragging and boasting.
- They accept compliments with grace and gratitude (Mind Tools Content Team, .

In addition to these more general signs, there are some signs that are specific to relationships; partners with self-confidence are:

- Less likely to be jealous and controlling.
- Willing to be vulnerable.
- Comfortable and willing to set healthy boundaries.
- Willing to admit when they're wrong.
- Comfortable assuming their crush or their date likes them.
- Less likely to blame themselves if the relationship doesn't work out.
- Assured of their own ability to make **good decisions**.
- Unlikely to show off or brag about themselves.
- More likely to accept responsibility for their actions and emotions.
- Willing to leave bad or unhealthy relationships (Alexis, 2014).

The team from the Mind Tools website listed several tips and suggestions for improving your self-confidence based on where you are in your journey:

1. Preparing for Your Journey

- a. Take inventory of what you've already achieved.
- b. Think about your **strengths and weaknesses** (but especially your strengths).
- c. Think about your **goals and values**.
- d. Practice stopping negative self-talk in its tracks and replacing it with positive thinking.
- e. Commit to the journey to self-confidence!

2. Setting Out

- a. Identify and enhance the knowledge and skills you need to succeed.
- b. Focus on the basics—don't get bogged down in details or reaching for perfection.
- c. Set small goals and achieve them to “pile up successes.”
- d. Keep working on your positive thinking and self-talk.

3. Accelerating Towards Success

- a. Celebrate your successes.
- b. Keep yourself grounded.

Some ways to cope with climate change anxiety

1. Get educated about climate change.

There's still time to [prevent](#) — with drastic action — the catastrophic effects of climate change, but people may hear only the most [pessimistic](#) reports and then hopelessly tune out.

Evans says one way to deal with stress related to the unknown aspects of climate change is to learn as much as possible about it.

2. Find concrete ways to make a difference.

Half of adults didn't know where to start in order to combat climate change. Eating less red meat, for example, can [reduce](#) carbon emissions. Participating in strikes and protests, like those held by [Greta Thunberg's Fridays For Future](#), draws attention to the issue and helps inspire others to act. Calling your elected official, whether at the local, state, or Congressional level, and pressing them to do more on climate change makes it harder for them to ignore the outcry.

Some ways to cope with climate change anxiety

3. Reframe negative thoughts.

In general, [research](#) shows that reframing negative thoughts can help alleviate stress, anxiety, and depression.

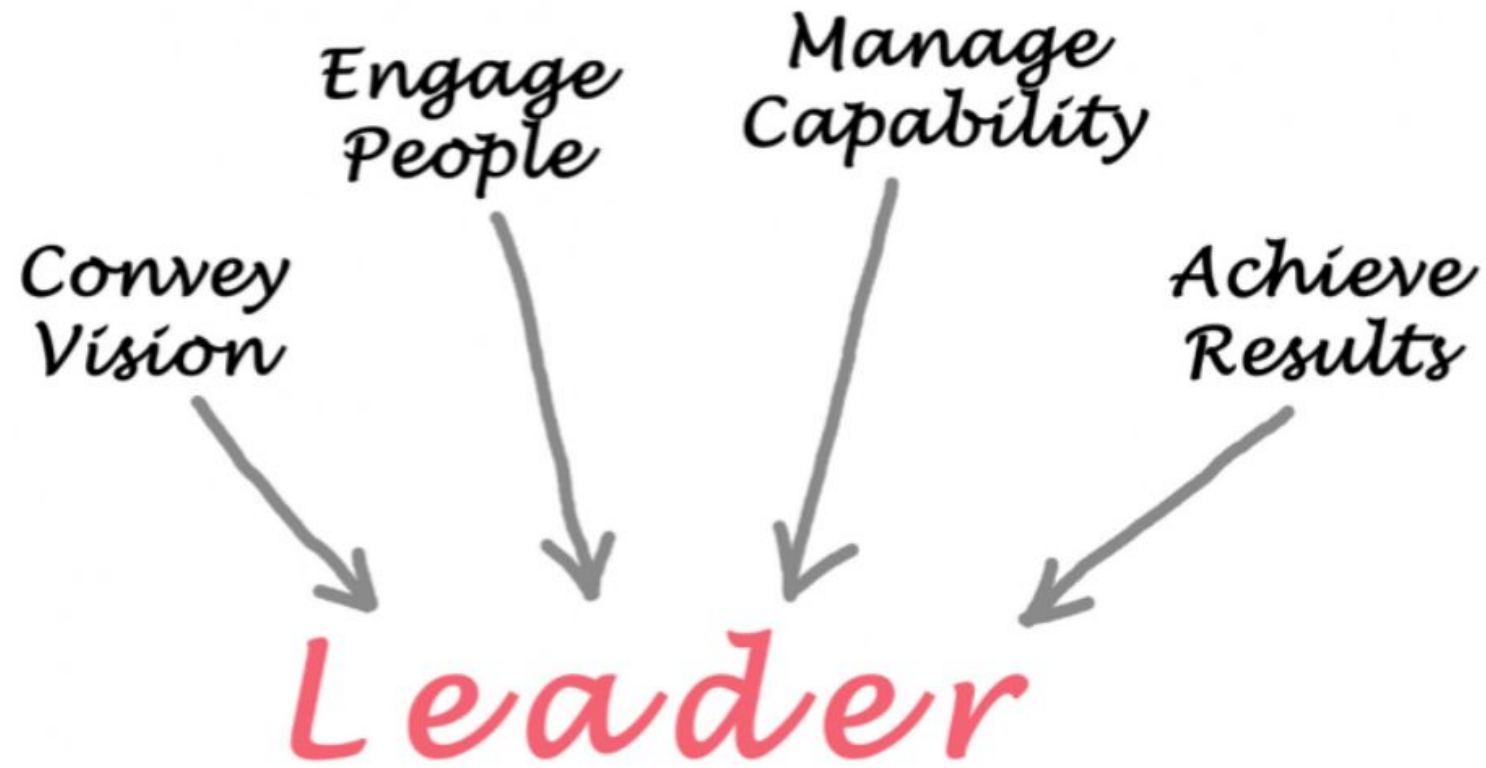
It may be helpful to focus your attention on the present moment while finding something positive about those circumstances. People who develop this skill tend to cope better than those who find it difficult to regulate their thinking, actions, and emotions.

4. Address all the stressors in your life, not just climate change.

Eco-anxiety may feel unique compared to other sources of anxiety, but it's important to think of climate change-related stress as part of your overall mental health. You may also be experiencing financial, relationship, professional, or physical stress, which can exacerbate your feelings about climate change, and vice versa. It's critical to address other stressors and to seek professional help if necessary.

5. Build your resilience.

Increased resilience can help you weather eco-anxiety. Evans recommends boosting resilience by continuing to develop a social network of friends and family. Strong social and emotional support has been [linked](#) to well-being, material aid during times of adversity, and lower rates of psychological distress following a disaster.



These 3 C's unite effective change leadership:

- Communicate. Unsuccessful leaders tended to focus on the “what” behind the change. ...
- Collaborate. Bringing people together to plan and execute change is critical. ...
- Commit. Successful leaders made sure their own beliefs and behaviors supported change, too.

How do we adapt to climate change?

It involves **taking practical actions to manage risks from climate impacts**, protect communities and strengthen the resilience of the economy. Adaptation can involve gradual transformation with many small steps over time, or major transformation with rapid change.

Thank you





Herbal and Holistic Wellness

*Catherine Asapokhai-Utsalo
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WASTE MANAGEMENT AND DISPOSAL IN OGUN STATE

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26th MAY 2021

CONTENT

- INTRODUCTION**
- SOLID WASTE MANAGEMENT IN OGUN STATE**
- WASTE CATEGORIZATION**
- CHALLENGES FACING SOLID WASTE MANAGEMENT**
- REMEDIES TO THE PROBLEMS OF POOR WASTE MANAGEMENT**
- GOVERNMENT ROLES IN ENSURING A CLEAN AND HYGENIC ENVIRONMENT**
- OGWAMA'S MISSION & VALUE**



INTRODUCTION

SOLID WASTE MANAGEMENT



Solid waste management is one of the most pressing environmental challenges faced by developing countries. In 2020, Nigeria's population was estimated to amount to 206 million individuals (www.statista.com), Nigeria produces a large volume of solid waste out of which less than 20% is collected through a formal system. In some cases, the end-stage of these production and consumption activities result in waste that are recycled and reused; however, in the majority of cases these end-of-stage waste are discarded/disposed of.

Municipal Solid Waste (MSW) as defined by the UN-Habitat are wastes generated by households, and wastes of a similar nature generated by commercial and industrial premises, by institutions such as schools, hospitals, care homes and prisons, and from public spaces such as streets, markets, slaughter houses, public toilets, bus stops, parks, and gardens". This working definition also includes most commercial and business wastes, with the exception of wastes from industrial processes and other hazardous wastes (UN-Habitat 2010:6).

WASTE MANAGEMENT IN OGUN STATE

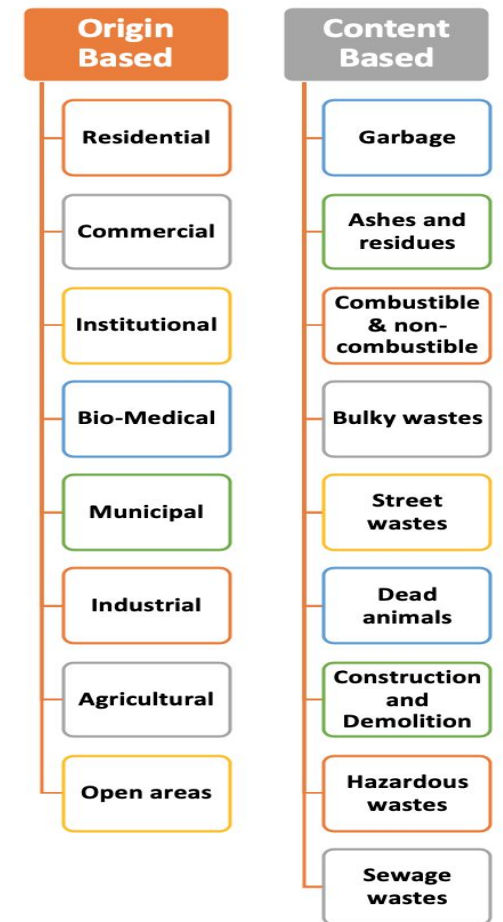


- ❑ OGWAMA was established in October 2019 by an Executive order and promulgated into a law by the State House of Assembly in July 2020
- ❑ OGSG MSW policy objectives is centered on provision of clean & livable environment; sustainable MSW services; job creation and investment opportunities
- ❑ The State generates about 3,380 metric tones of waste daily from estimated population of 5.2 million residents (NBS)
- ❑ Landmass of 16,981 sq.km and highly industrialized. WB projected 6% annual growth rate against the National projection of 2.7% for 2020.

WASTE CATEGORIZATION

- ❑ Correct classification is the foundation for ensuring that the segregation, collection, transportation, storage, treatment and disposal of waste is carried out in a manner that provides protection for the environment and human health and in compliance with legal requirements.
- ❑ Waste categorization is a system of classification of waste according to predefined criteria. For the purpose of this solid waste management policy document, waste shall be classified according to the following:
 - ❑ a) Household waste
 - ❑ b) Industrial waste: hazardous and non-hazardous industrial waste
 - ❑ c) Electronic waste (e-wastes)
 - ❑ d) Special bulk waste
 - ❑ e) Agricultural waste
 - ❑ f) Marine Litter
 - ❑ g) Medical Waste

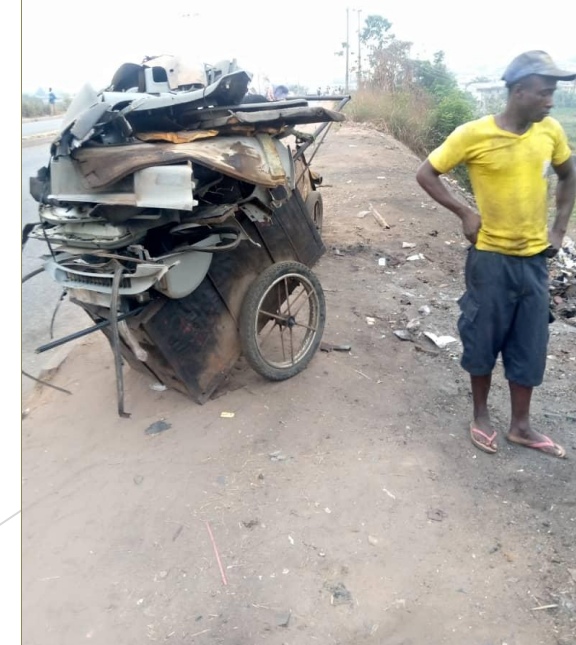
Types of Solid Wastes



MENACES AND CHALLENGES FACING SOLID WASTE MANAGEMENT IN OGUN STATE

- ❑ With increasing population and industrialization, and the public's non-compliance, Ogun State is faced with the challenge of adequately handling the increasing quantum of solid waste generated from anthropogenic activities. The challenges facing the State can be capped under the following major issues:
 - ❑ Unauthorized and Indiscriminate disposal of solid waste
 - ❑ Improper storage facilities on the part of the public
 - ❑ Utilization of illegal dumpsites
 - ❑ Ignorance/Unawareness on the part of the public
 - ❑ Unregulated waste trading among the industries
 - ❑ Industrial waste is co-mingled with hazardous waste
 - ❑ Indiscriminate handling of industrial waste at illegal dumpsites
 - ❑ Illegal collection and indiscriminate dumping of solid waste by cart pushers

**APPREHENDED CART
PUSHER BY OGWAMA**



Cont'd

- ❑ Security threat posed by cart pusher to the society in respect to collection of solid waste
- ❑ Low participation of Private Sector Participants (PSP)/Contractors
- ❑ Secrecy of industries and PSP operators in financial dealings with the Government

ILLEGAL DUMPSITE AT IKENNE.

BEFORE



Unnamed Road, Ikenne, Nigeria

Latitude 6.8674016° Longitude 3.7197378°

Local 09:33:23 AM Altitude 14.8 meters
GMT 08:33:23 AM Wednesday, 27-01-2021



AFTER



Unnamed Road, Ikenne, Nigeria

Latitude 6.867385° Longitude 3.7194533°

Local 05:41:23 PM Altitude 30.3 meters
GMT 04:41:23 PM Wednesday, 27-01-2021



Unnamed Road, Ikenne, Nigeria

Latitude 6.8674389° Longitude 3.7196423°

Local 06:04:50 PM Altitude 41.2 meters
GMT 05:04:50 PM Wednesday, 27-01-2021

REMEDIES TO THE PROBLEMS OF POOR WASTE MANAGEMENT.

- ❑ Ensuring waste is being managed by Government accredited PSP operators.
- ❑ Usage of disposal refuse bags for household waste collection and placing of mammoth bins at strategic locations, most especially at market place.
- ❑ Closing down of illegal dumpsites and usage of Government approved ones.
- ❑ Adopt proper waste segregation and sorting at source.
- ❑ Incorporation of Cart pushers into waste management
- ❑ Drastic enforcement exercise should be ensured.
- ❑ Engagement of enough PSP Operators.
- ❑ Effective and efficient monitoring by Government officials to enhance full compliance.

GOVERNMENT ROLE IN ENSURING A CLEAN AND HYGENIC ENVIRONMENT

- ❑ Creation of OGUN STATE WASTE MANAGEMENT AUTHORITY which was signed into Law in Year 2020 to tackle and re-energize the Solid Waste Management in the State
- ❑ Collaboration with the Private Section Participants to ensure healthy and safe environment.
- ❑ Daily evacuation of incessant refuse in the nooks and crannies of the State.
- ❑ Sensitizing the public on waste management from the source, this includes radio jiggles, Tv Awareness programs etc.

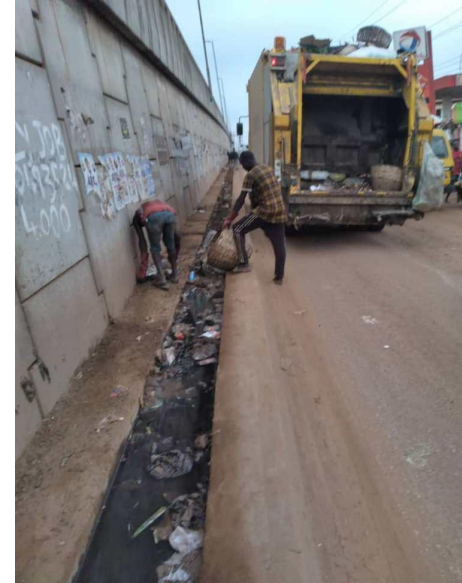
EVACUATION OF BACKLOG AT OTA



GOVERNMENT ROLES IN ENSURING A CLEAN AND HYGENIC ENVIRONMENT

CONT'D

- ❑ Sweeping of highways
- ❑ Strategizing creation of community recycling centers in all the 20 L.G.A of the State
- ❑ Evacuation of illegal dumpsites in the State.
- ❑ Constant maintenance of all dumpsites.



CONCLUSION

▶ **OGWAMA's MISSION;**

- Our mission is to coordinate the approach to effective waste collections, waste reduction, and ensuring individual/corporate responsibilities through sustainable waste management practices.

▶ **OUR VALUES**

- Ensure waste to wealth, and job creations.
- Commitments to safety and efficiency in waste management.
- Public Health and Environmental Safety.
- Professionalism and transparency.
- Environmental sustainability, rule of law, and best available practices.

THANK YOU FOR LISTENING.



Sustainable Agro Tree Planting



JAMES OYESOLA

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DESK OFFICER ON CLIMATE CHANGE

MINISTRY OF AGRICULTURE OGUN STATE NIGERIA

AT

PROTECT OUR PLANET

26/08/2021

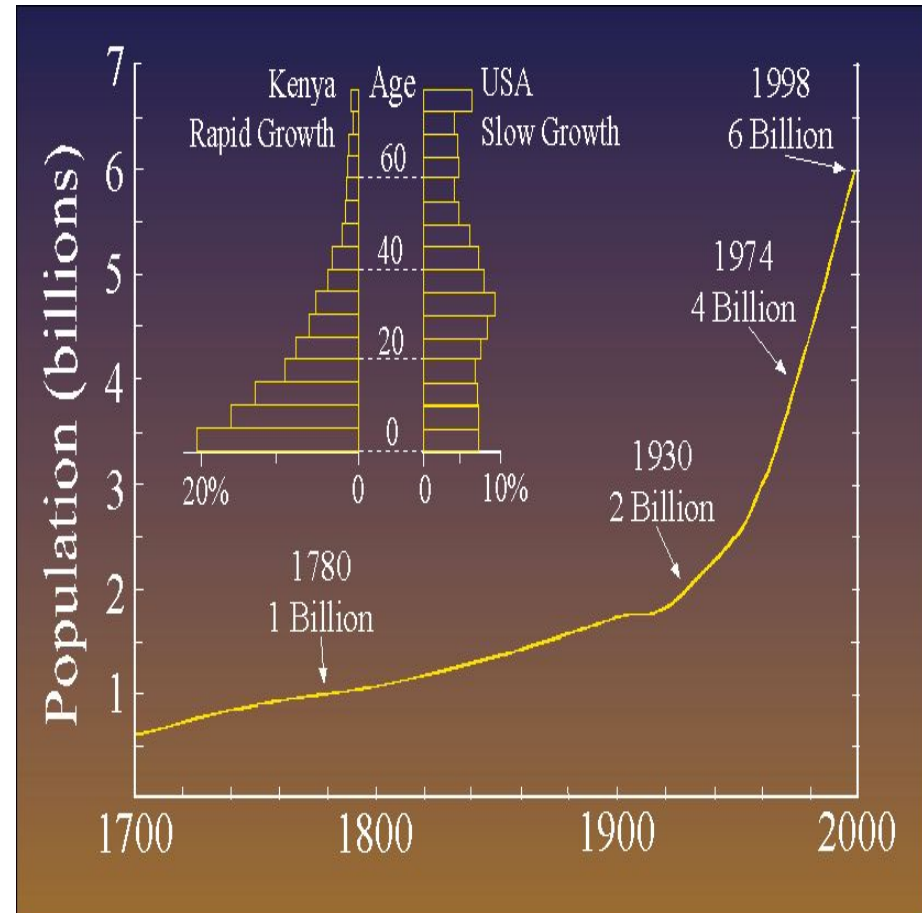
CONTENT

- TRENDS IN POPULATION
- NAGATIVE IMPACT ON THE ENVIRONMENT
- DEFINITION OF SUSTAINABLE AGRO TREE PLANTING
- GOAL OF SUSTAINABLE AGRO TREE PLANTING
- PLANTING AND ESTABLISHING TREES

Trends

The onset of the industrial age brought about various trends that have led us to our present state.

- The quick rise in population.
 - More people to feed.
- The greater need for production.
 - Farms required to produce more.
- The increase in urbanism.
 - Less farms to do more work.
- Wide-spread ecological impacts.
 - Faith in technological, political and economic fixes.



Negative Impacts

Our current industrialization has resulted in numerous negative side-affects:

□ Environmental damages

- Reduced biodiversity
- Habitat destruction
- Deforestation
- Water, air and soil pollution
- Salinization, desertification
- Climate Change
- Decline in water resources and land subsidence



□ Human impacts

- Farm land destruction
- Damage to soil fertility
- Reduced nutritional value of food
- Decreased economic, social and cultural values

For the past several years research has looked at sustainable Tree Planting among others as a potential solution to correct and prevent these problems.

Defined

Sustainable Agro Tree Planting means “an integrated system of Tree planting practices having a site-specific application that will over the long term:

- satisfy human food , fiber needs and Industrial raw materials
- enhance environmental quality and the natural resource base upon which the agricultural economy depends
- Mitigate the effect of Climate Change
- sustain the economic viability of farm operations
- enhance the quality of life for farmers and society as a whole."

Goal

The goal of sustainable agro tree planting is to minimize adverse impacts to the immediate environments caused by environmental factors like Climate Change, Land Degradation among others while providing a production and profit.

Inherent to this goal is the understanding that sustainability must be extended not only globally, but indefinitely in time, and to all living organisms including humans.



Simply stated, **sustainable agro tree planting** refers to the ability of a farm to produce or plant trees indefinitely, without causing irreversible damage to ecosystem health.

Planting and establishing trees



Remember!

If you remove a tree ,
plant another one in its place.



Steps for proper planting

1. Look up for wires/lights
2. Dig shallow/wide hole
3. Find the top-most root and treat root defects
4. Place tree in hole
5. Position top root 1-2 inches above landscape soil
6. Straighten tree
7. Remove synthetic materials
8. Add backfill soil and firm the root ball
9. Add mulch
10. Stake and prune if needed



Look up!



This is your last chance to be sure you have selected the right tree for the right place.

If there is a wire, security light, or building nearby:

- Plant elsewhere, or
- Plant a small-maturing tree

Steps for proper planting

1. Look up for wires/lights
2. **Dig shallow/wide hole**
3. Find the top-most root and treat root defects
4. Place tree in hole
5. Position top root 1-2 inches above landscape soil
6. Straighten tree
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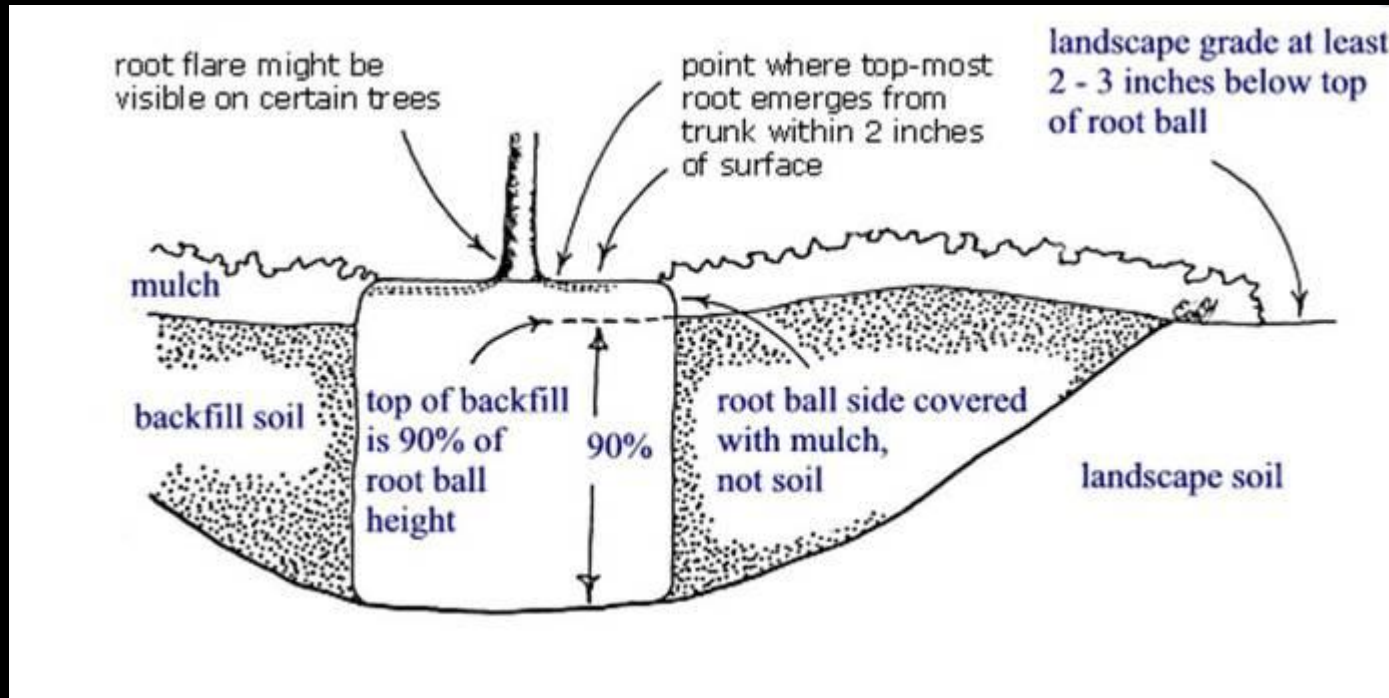


Measure the distance between the top most root and the bottom of the root ball.



Dig the hole to about 90 to 95% of this depth.

Dig the planting hole as wide as possible



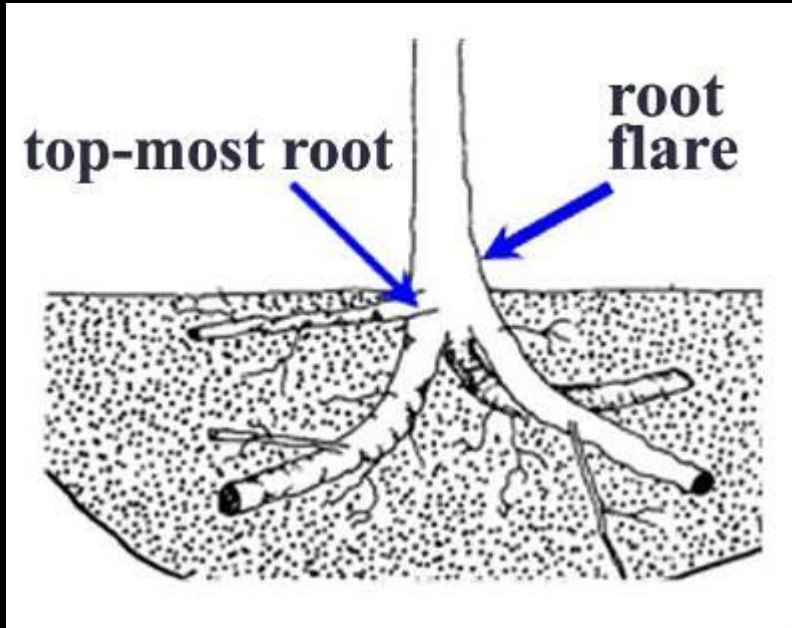
- The planting hole is at least 1.5 times the diameter of the root ball.
- This provides loose soil for the expansion of new roots.

Steps for proper planting

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Find the top-most root



- The point where the top-most root meets the trunk of the tree should be no more than 2 inches deep in the root ball.

Desirable root ball



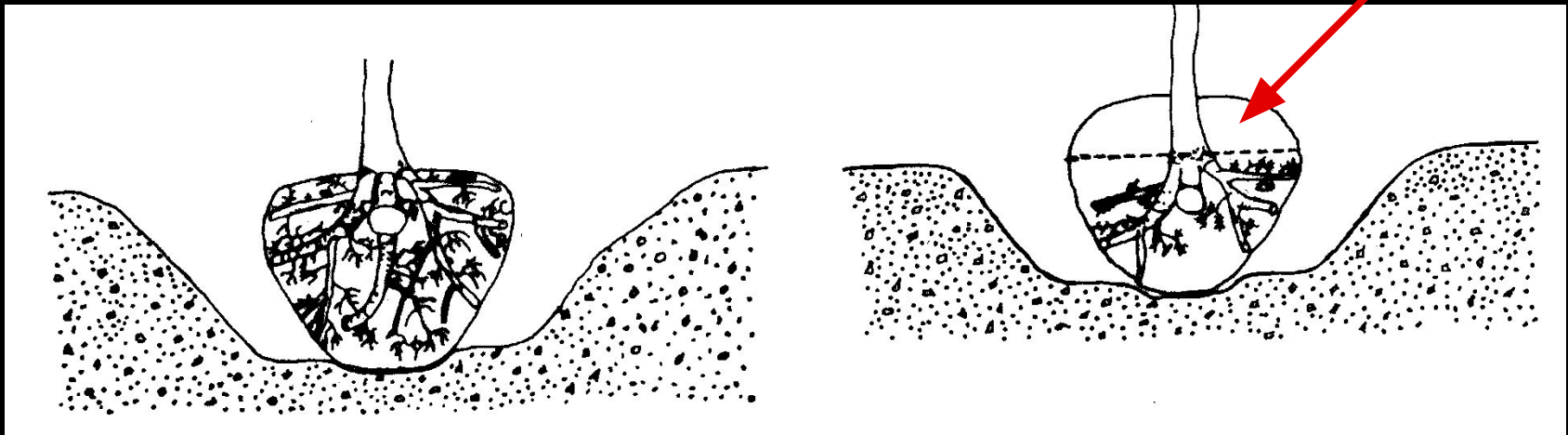
- The point where the top-most root emerges from the trunk is at the surface. Encourage growers to grow trees like this to make it easy to check for root defects.

Root ball quality

Good-quality root ball

Poor quality root ball

Remove
excess soil



- (RIGHT) Too much soil on top of the root ball can indicate a poor-quality root ball.
- (LEFT) Trees with the top-most root near the surface of the root ball have more of a root system.

Remove excess soil

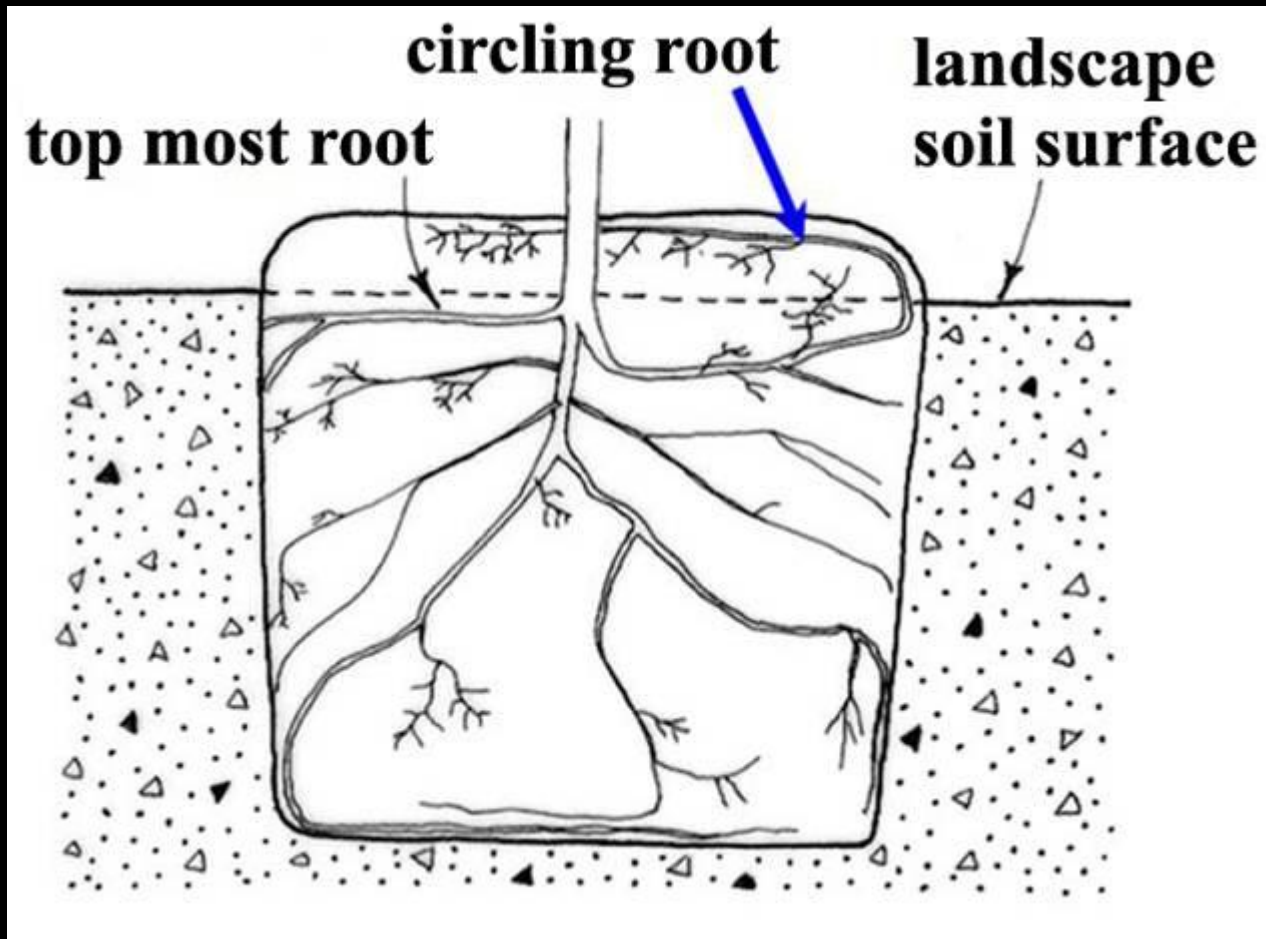
- Remove excess soil from the top of the root ball.



Three inches of soil and media were removed from the top of this ball.

Treating root defects

- Cut or spread out any circling or kinked roots growing up above the top-most root.

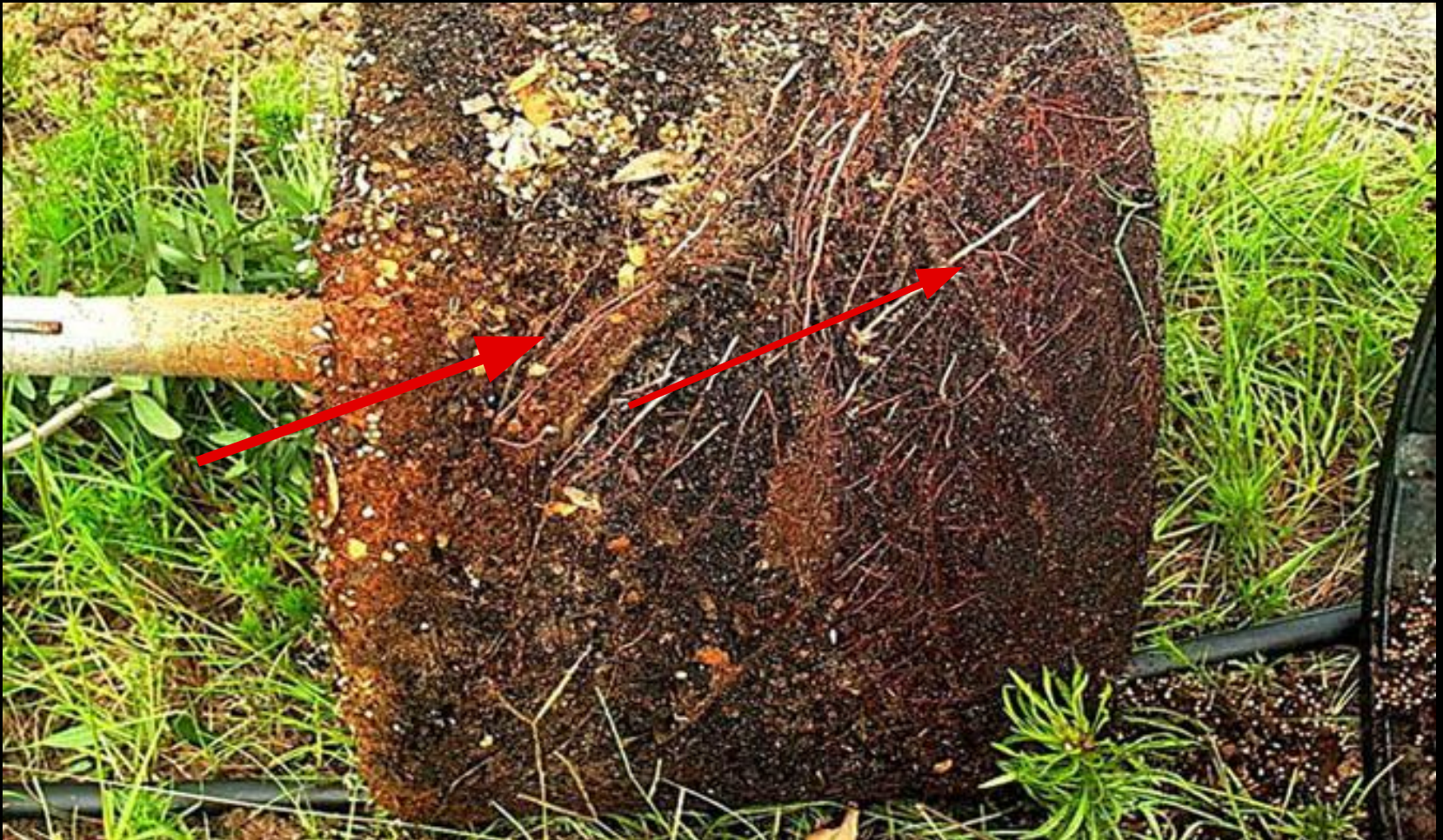


Defects at top of ball



- Remove media from top of root ball and cut circling and crossed roots

Circling roots – cut them, or tear up the edge of the root ball to spread roots out



Cutting circling roots



- New roots will grow quickly into backfill soil following cutting and stem girdling roots are less likely to form.

Defects can be inside root ball



- Be sure to look for roots that circle when trees were in a smaller container
- These are difficult to cut because they are hidden in the interior of the ball.

Trees with circling root defects are often found leaning or fallen after a storm.



Steps for proper planting

1. Look up for wires/lights
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3. Find the top-most root and treat root defects
4. **Place tree in hole**
5. Position top root 1-2 inches above landscape soil
6. Straighten tree
7. Remove synthetic materials
8. Add backfill soil and firm the root ball
9. Add mulch
10. Stake and prune if needed



Lifting tree into the planting hole



- To avoid damage when setting the tree in the hole, lift the tree with straps or rope around the root ball, not by the trunk.



Set tree in the hole



Steps for proper planting

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Position the tree in the soil

- Many professionals agree that it is better to plant the tree a little high than too deeply.



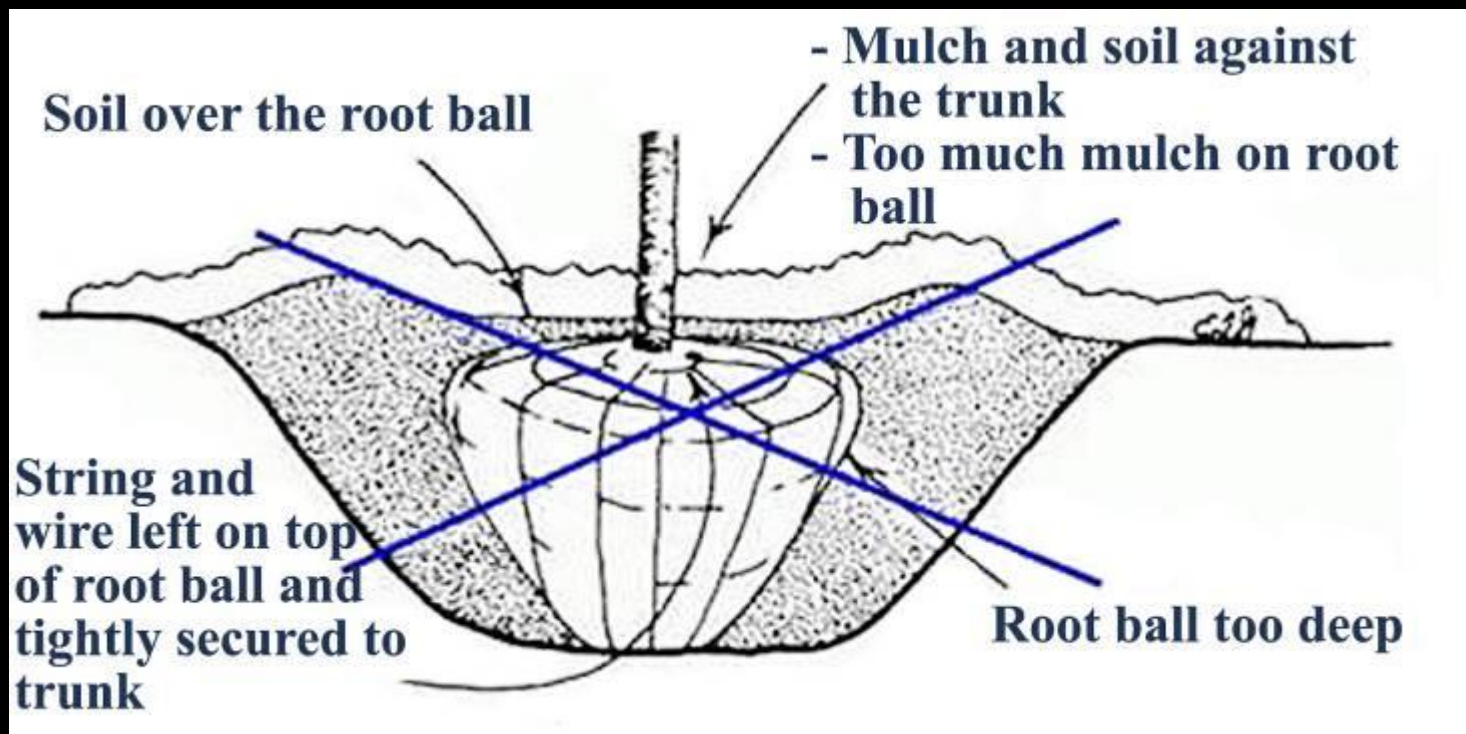
- When the top-most root is too deep in the root ball, set the top of the ball several inches higher than the landscape soil to adjust as shown above.

TOO DEEP! - add soil to
bottom of hole



Effect of planting depth on stress after planting

- Soil intercepts water meant for the root ball causing roots to dry out.



Steps for proper planting

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Straighten the tree



- Before adding backfill, be sure to check that the tree is straight by looking at it from two perpendicular directions.

Steps for proper planting

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6. Straighten tree
7. **Remove synthetic materials**
8. Add backfill soil and firm the root ball
9. Add mulch
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Balled-in-burlap trees

- Burlap should be removed from the bottom of the trunk and the top of root ball.



Remove all synthetic burlap



- Synthetic burlap melts into a plastic goo while real burlap flames and turns to ash when lit.
- If burlap is synthetic, be sure to remove all of it with a pruner, knife or other sharp blade.

Synthetic burlap can girdle roots



- Roots grow through artificial burlap with little difficulty, but as the roots attempt to expand in diameter, they become girdled or strangled.



- Each of these roots is very easy to break off at the burlap because there is very little wood that developed through the burlap.

Wire baskets

- Baskets made from heavy gauge wire are often used to help keep a root ball intact during shipping and handling.
- There is no research documenting the detrimental effects of wire baskets on trees.



Steps for proper planting

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8. **Add backfill soil and firm the root ball**
9. Add mulch
10. Stake and prune if needed



Cut into the backfill

- Slice a shovel into the soil at the edge of the hole to enlarge the hole.
- Push this soil against the root ball.



Enlarged hole and loosened soil



Moderately pack the backfill soil



Water the backfill to settle



Ready for mulch

- About two inches of the root ball should remain above ground after all the backfill soil is added.
- This ensures the top-most root remains above ground, even if the root ball settles.



Steps for proper planting

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9. **Add mulch**
10. Stake and prune if needed



Mulching



- Apply a 3-inch thick layer of mulch to at least an eight-foot diameter circle
- Apply a thinner 1" layer of mulch over the root ball if necessary, but keep it at least 10" from the trunk

Mulching



- Mulch as large an area as possible to allow the tree roots to expand without competition from turf roots.

Improper mulching

- If turfgrass grows up to the trunk, trees often perform poorly.
- Turf and weeds rob trees of moisture and nutrients and some produce chemicals that inhibit tree growth.
- Lawn mowing equipment damages trunk



Improper mulching



- Never pile mulch in a volcano-like manner against the trunk. This can rot the trunk, cut off oxygen to roots, keep vital irrigation and rain water out, and can keep roots too wet in poorly drained soils. Stem girdling roots form from this on some trees.

Adding a berm



- A 3 to 4-inch berm could be constructed at the edge of the root ball to prevent water from running off as seen here.



- Prevent soil from washing over the root ball by covering berm with a 3 to 4-inch layer of mulch, or by constructing the berm entirely from mulch.

Steps for proper planting

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Traditional staking methods

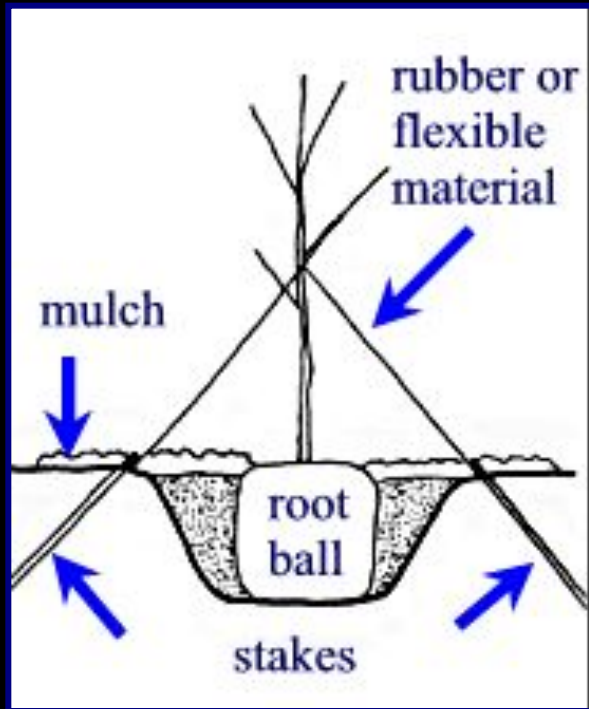


Figure 1

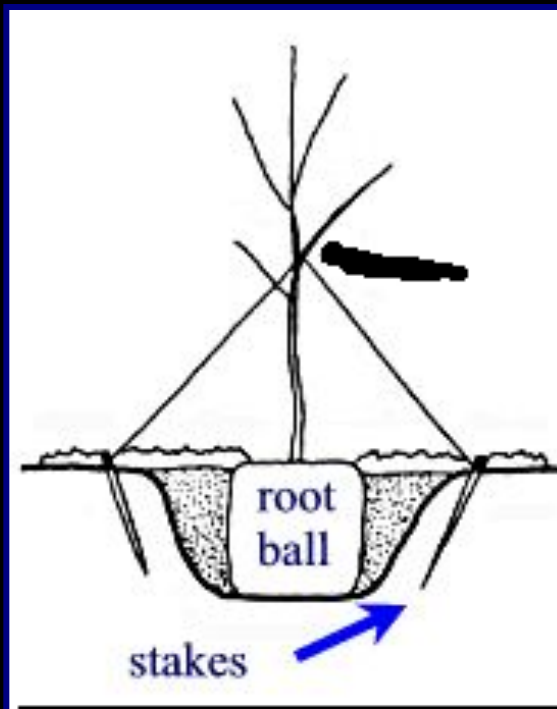


Figure 2

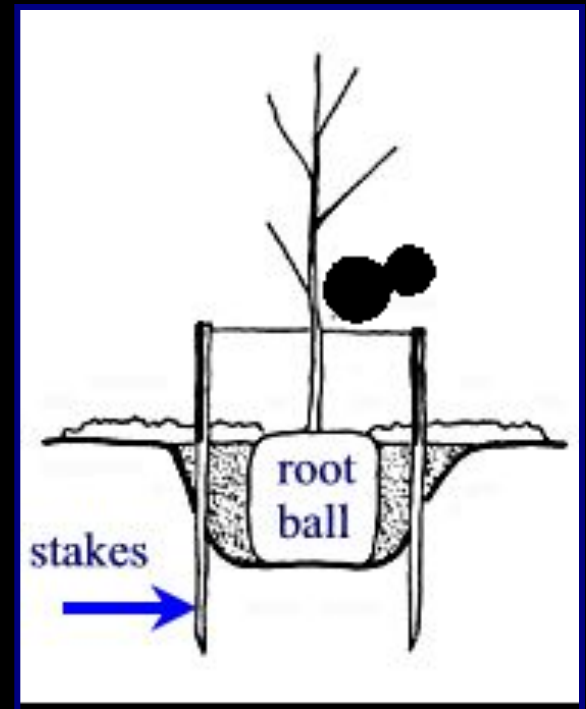


Figure 3

- All these systems require removal within one year of planting.

Alternative staking methods



Figure 4

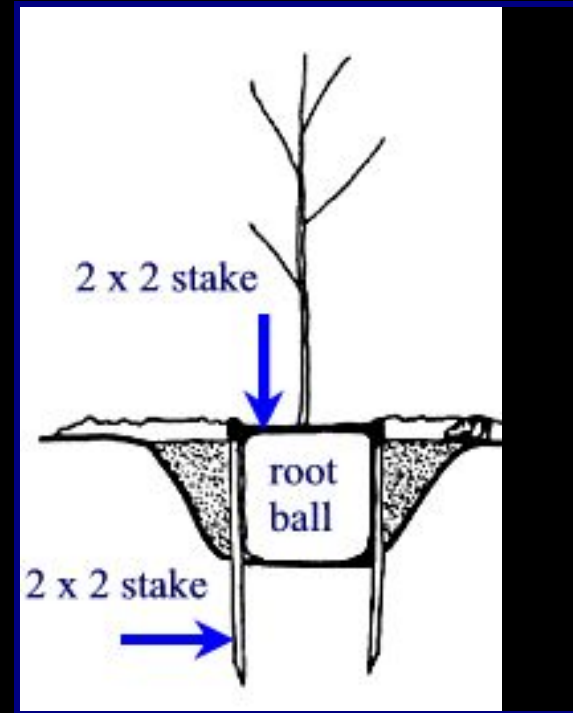


Figure 5

- This inexpensive alternative staking system does not need to be removed because they simply decay in a few years.

Prune to finish the job

- Remove broken branches.
- Perform structural pruning if needed.
- Do not prune to compensate for root loss.



Fertilizer at planting?

- **Not necessary** – fertilizing at planting time is not likely to improve survival or growth. A small benefit might occur in very poor soil.
- **Soluble fertilizers** could burn roots if too much is applied, which could injure or kill the tree.

Establishment

Establishment period: the time it takes for a tree to regenerate enough roots to stay alive without irrigation. In dry climates , many trees will need supplemental irrigation well past the establishment period.

- Roots grow to pre-transplanting length
- Trunk and shoot growth match pre-transplant rate
- Time: about 3 - 4 months/ inch trunk caliper in Florida

Establishment rate is influenced by a variety of factors

Encourages growth	Limits growth	Little or no effect
Loose soil	Compacted soil	Peat or organic matter added
Proper irrigation	Little or no irrigation	Water absorbing gels
Mulch 8' around planting hole	Grass and weeds close to trunk	Root stimulant products
Root flare above soil surface	Planting too deeply	Adding spores of mycorrhizae *
Leaving shoots intact	Pruning at planting	Fertilizing at planting

During establishment

- **Irrigate**
 - 2 – 3 times weekly until established
 - 2 gallons per inch trunk caliper on root ball
- **Mulch**
 - Control weeds
 - Increase mulch diameter over time to keep pace with root growth
- **Minimize soil compaction**
- **Remove stakes, protect lower trunk**

Irrigation: is it volume or frequency?

- It's frequency!
- Experiment done on 4-inch hardened-off B&B trees where 1.5, 3, or 5 gallons of water were applied per inch trunk caliper.

→ Results show that volume did not matter but frequency did.



Frequency of irrigation based on tree size

Size of nursery stock	Irrigation schedule for vigor	Irrigation schedule for survival
< 2 inch caliper	Daily: 2 weeks Every other day: 2 months Weekly: until established	Twice weekly for 2-3 months
2 – 4 inch caliper	Daily: 1 month Every other day: 3 months Weekly: until established	Twice weekly for 3 – 4 months
> 4 inch caliper	Daily: 6 weeks Every other day: 5 months Weekly: until established	Twice weekly for 4 – 5 months

Months of irrigation to provide based on climate and tree size at planting

	USDA Hardiness Zone					
Max. trunk diameter at planting	5	6	7	8	9	10
1 inch	12 months	10 months	7 months	5 months	3 months	3 months
2''	24	20	15	10	6	6
3''	36	30	23	16	9	9
4''	48	39	30	21	12	12

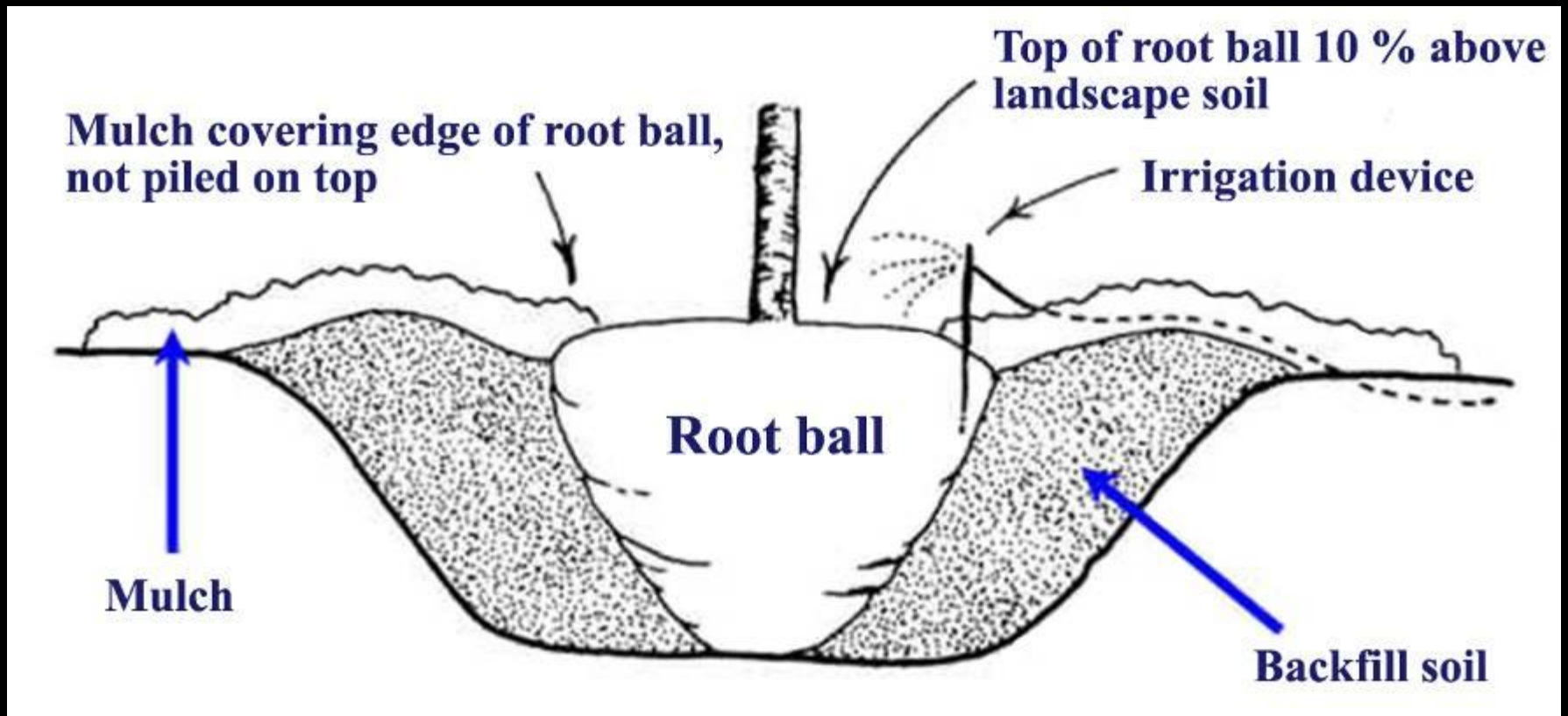
By the way this tree is planted correctly



This tree is planted too deeply



Summary of proper planting



**For more information
on related topics...**

Visit the Department of Tree Crops at
Oke-mosan Abeokuta :

08034550926