

Establishing and Maintaining Living Fences



Euphorbia balsimifera



Ziziphus mauritiana



Agave sisilana

What is live fencing?

The use of trees and shrubs to create an animal-proof barrier

What are the secondary benefits of living fences?

Fodder , food, medicine, fuel wood, erosion control, soil fertility

Are there disadvantages to living fences?

Labor-intensive at beginning...weeding, protection, etc...

Live Fencing Species with Secondary Benefits

Human Food

Moringa oleifera

Ziziphus mauritiana

Fodder

Acacia nilotica (pods)

Leucaena leucocephala

Fuel Wood

Acacia nilotica

Cassia siamea

Leucaena leucocephala

Parkinsonia aculeata

Prosopis juliflora

Medicine

Moringa oleifera

Agave sisilana

Industrial Uses

Acacia senegal

Acacia nilotica

Jatropha curcas

Disadvantages of Dead Fences

- Not permanent
- Deforestation
- No secondary benefits
- No soil fertility improvement benefits



Beginning a Tree Nursery for a Living Fence

Factors to Consider:

Seed sources and collection

Protection from animals

Provide shading for young trees

Sand and manure availability

Reliable water source

Pounding Large Clumps of Manure

- If manure is in large clumps it must be pounded.
- Sheep and goat manure also must be pounded
- A large piece of wood works



Sieving Manure with Onion Sacks





Wet sand manure mixture and mix well.

Filling tree sacks with sand and manure mixture



Seed Treatment to Increase Germination Rate

Many *Acacia* species, *Prosopis juliflora*, and *Leucaena leucocephala* require seed treatment to improve germination.

1. Boiling method: Pour boiling water over seeds and soak 24 hours.
2. Scarify seeds: Use knife to cut into seed coat to allow water to enter seed

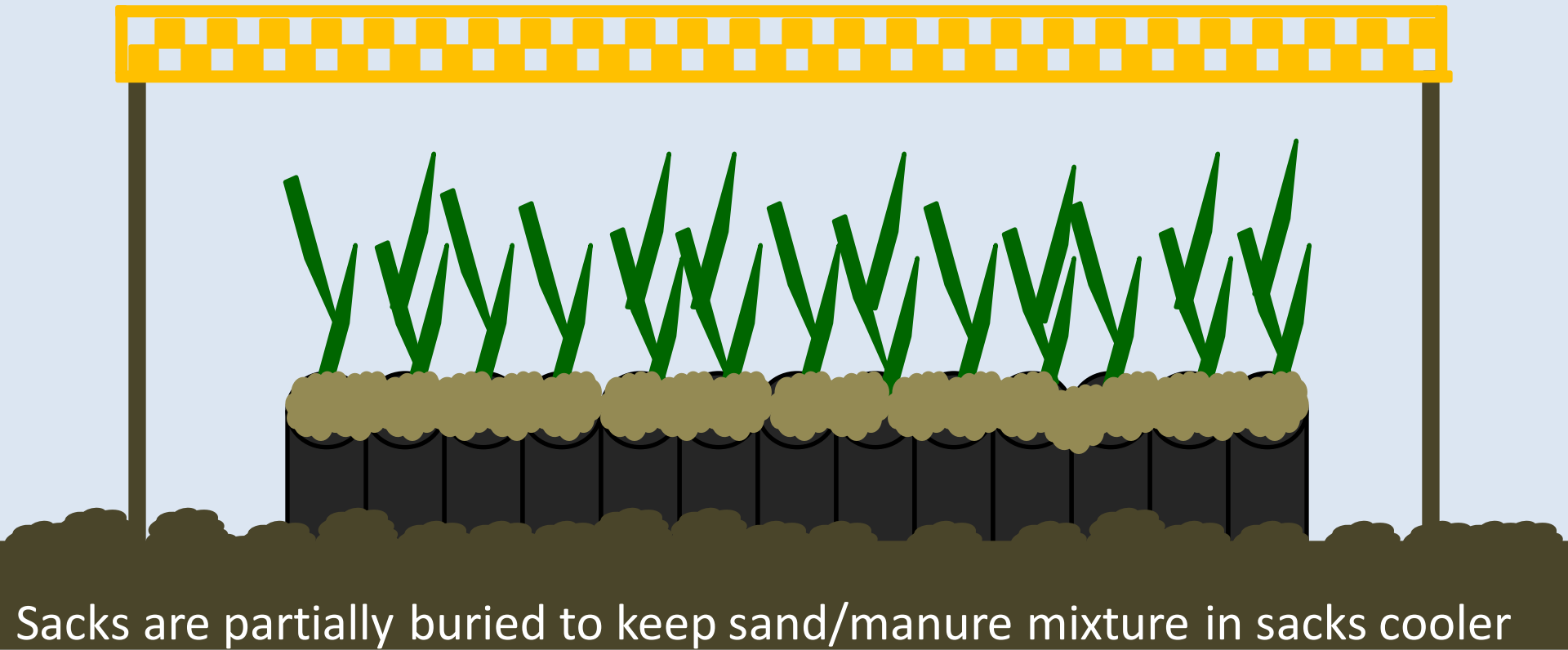


Tree nurseries must be buried partially in the ground to keep the sand/manure mixture cool.



Live Fencing Tree Nursery with Shade Structure

Onion bags can be used to provide shade for young plants



Sacks are partially buried to keep sand/manure mixture in sacks cooler

A mixture of 2 parts sand and 1 part manure (both sifted) works well

Be careful! Do not disturb roots.



Shade Structure Over Tree Nursery



Three Different Types of Plantings for Live Fences

Thorny Hedges

Thorny species are planted closely and pruned regularly to create a living hedge

Living Fence Posts

Fast growing, straight trees can serve as living fence posts and thorny branches can be woven around them

Living Barriers

Plant species very closely (0-20 cm) to create impenetrable barrier

Live Fencing Species Common in West Africa

Thorny Species

Acacia mellifera

Acacia nilotica

Acacia ataxacantha

Agave sicalana

Parkinsonia aculeata

Prosopis juliflora

Living Barrier Species

Euphorbia balsamifera

Euphorbia turicali

Jatropha curcas

Fence Posts

Cassia Siamea

Leucaena leucocephala

Moringa oleifera

Gmelina arborea

Ziziphus mauritiana

Newly planted *Jatropha curcas* trees are protected by “dead” fence made of branches



Young *Prosopis juliflora* trees are protected inside a thorny “dead” fence

Living Barriers

Barrier of *Agave sisilana*



Young *Euphorbia balsimifera* cuttings beginning regrowth

Protecting Young Living Fences Inside Dead Fences



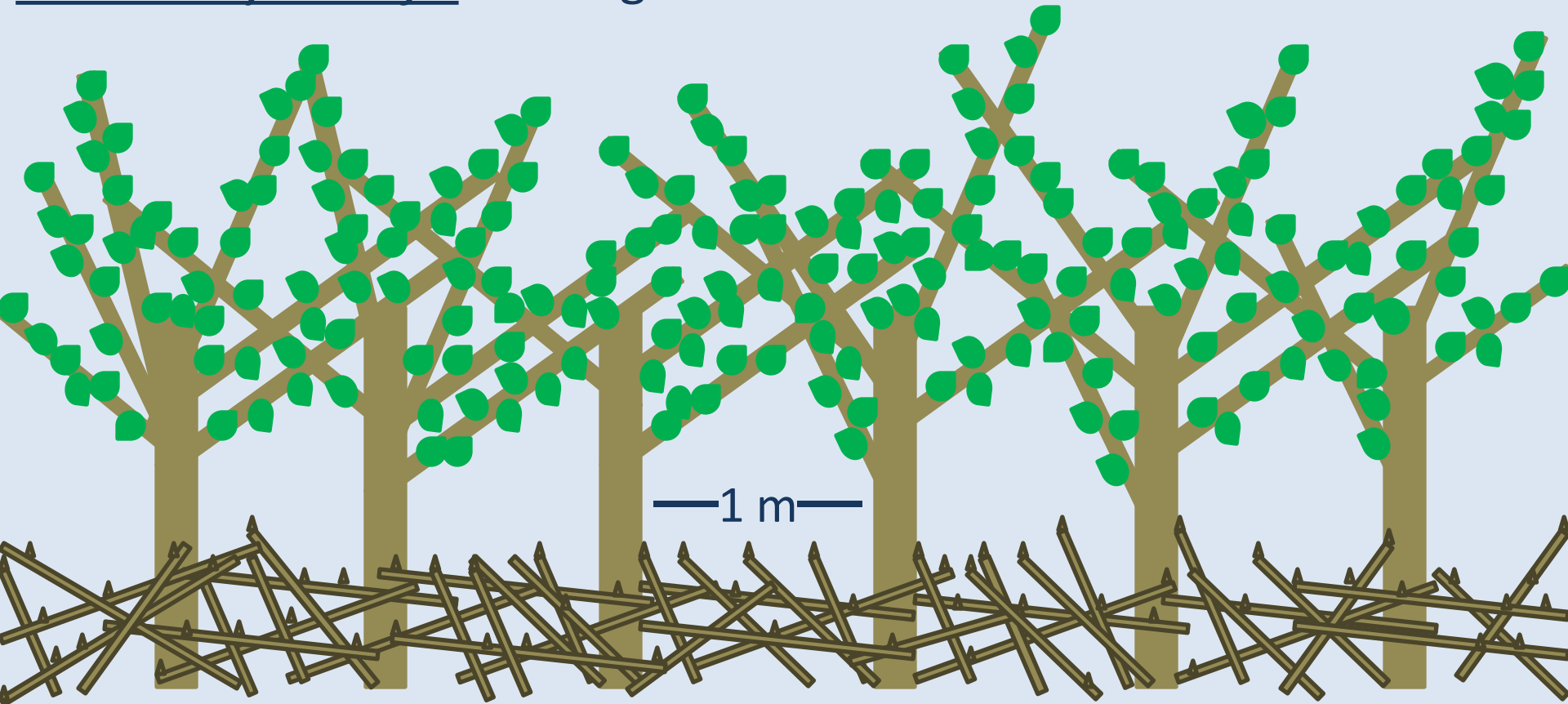
livestock

dead fence

young living fence

Moringa Living Fence Posts

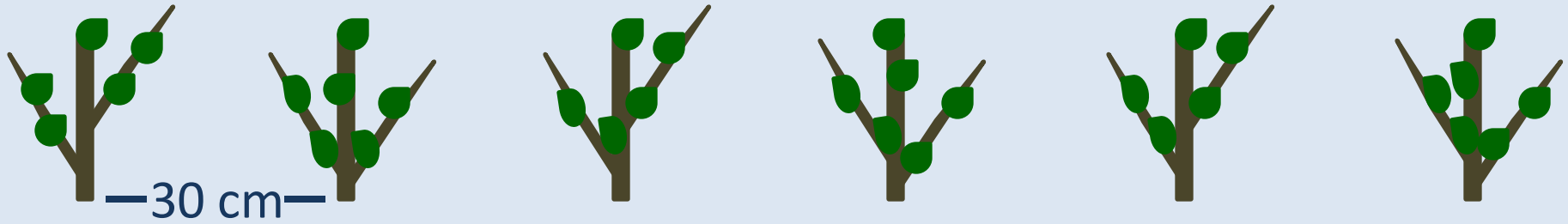
Secondary benefit: Moringa leaves



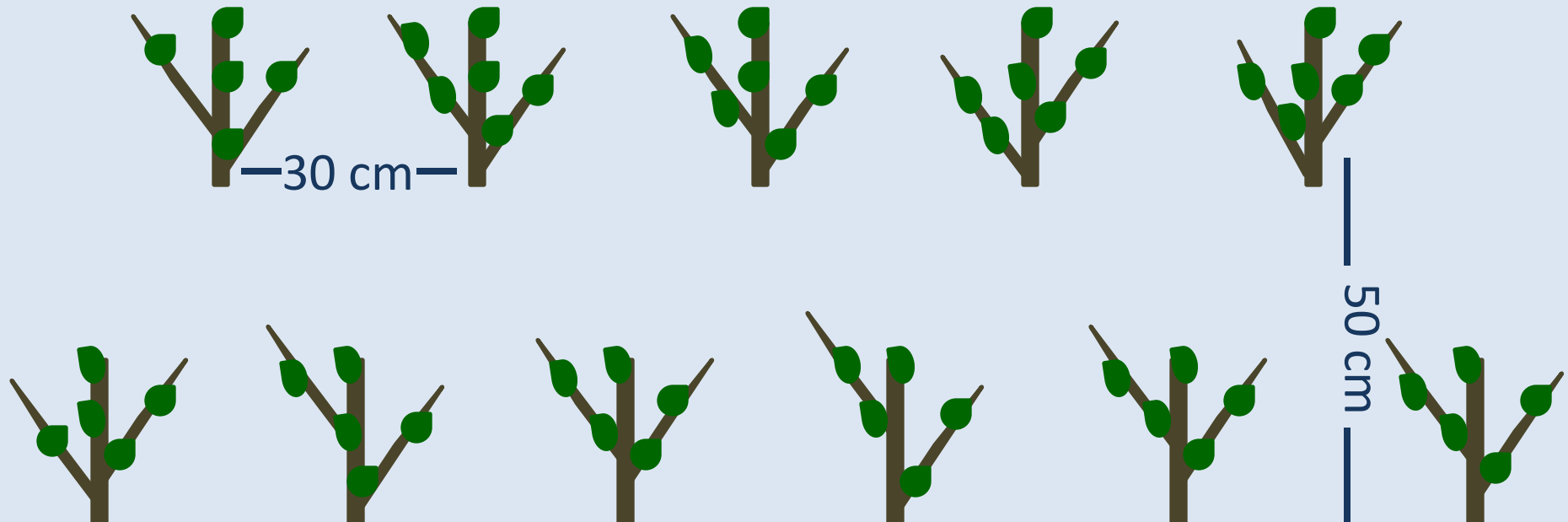
Dead branches from thorny species such as *Ziziphus mauritiana* or *Prosopis juliflora* can be added around Moringa living posts

Live Fencing Planting Methods for Thorny Hedge Rows

Single Row of Trees

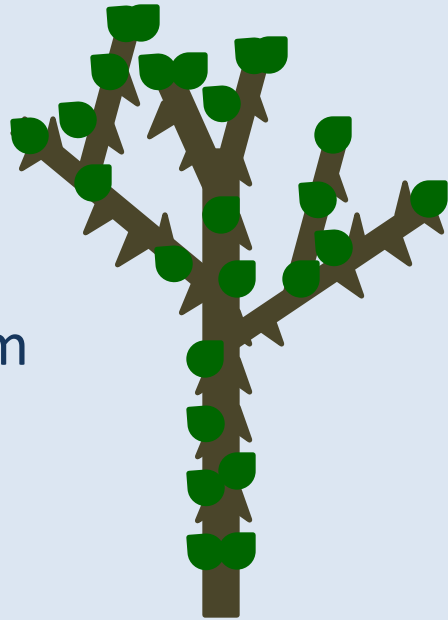


Double Row of Staggered Trees

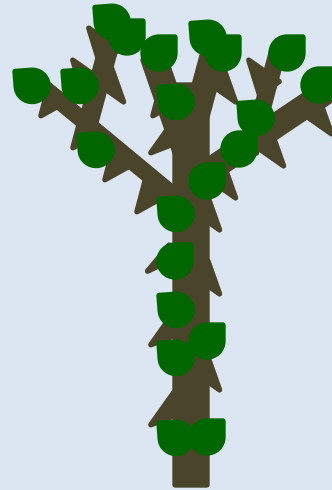


Pruning Thorny Species to Encourage Horizontal Shoot Growth

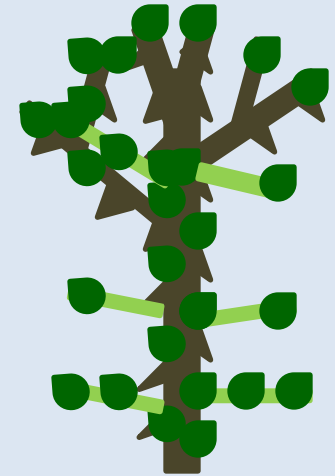
6 Months Old



1st Pruning



New Growth



QUESTIONS?