



Rotary District 9350 Food Gardens Webinar

Watering Food Gardens



AGENDA

- 16:55 How to Water a Food Garden
- 17: 00 Welcome - Doug Batchelor
- 17:01 Watering a Food Garden – Wolfgang Schenck (RC Klein Windhoek Valley)
- 17:25 Questions
- 17:30 Carpe Diem – Food Garden Watering System utilising rain water – Gerhard Eggers (RC George)
- 17:50 Questions
- 17:55 Gardening Tips - Michelle Nel (RC Helderberg Sunrise)
- 17:59 Closure – Anton Lubbe
- 18:00 End of Webinar



Watering a Food Garden

Wolfgang Schenck

(RC Klein Windhoek Valley)



Rotary
District 9350



CREATE HOPE
in the WORLD

DISTRICT 9350 FOOD GARDENS WEBINAR

"WATERING A FOOD GARDEN"

Time: Jul 26, 2023 17:00
Johannesburg

Join Zoom Meeting

[CLICK HERE](#)

Meeting ID: 830 7220 2858
Passcode: 991622

For further details contact Anton Lubbe Lubbea@mweb.co.za

WATERING A FOOD GARDEN

- Water is Precious

When I started to monitor my waterconsumption in detail I realised that

→ **80% of water used a month was for the garden!**

[my first 3 mango's cost me N\$/SAR160.00 ea. in water!]



AllPosters



WATERING A FOOD GARDEN

• 1. Step



WATERING A FOOD GARDEN

- Water is Costly

for smaller gardens do away with

- garden hose (specifically if it has no stop-nozzle on it!)
- sprinklers of any kind
- automatic sprinkler systems
- MOST OF ALL flood irrigation



WATERING A FOOD GARDEN

• Not All Need The Same

Not all plants need same amount of water.

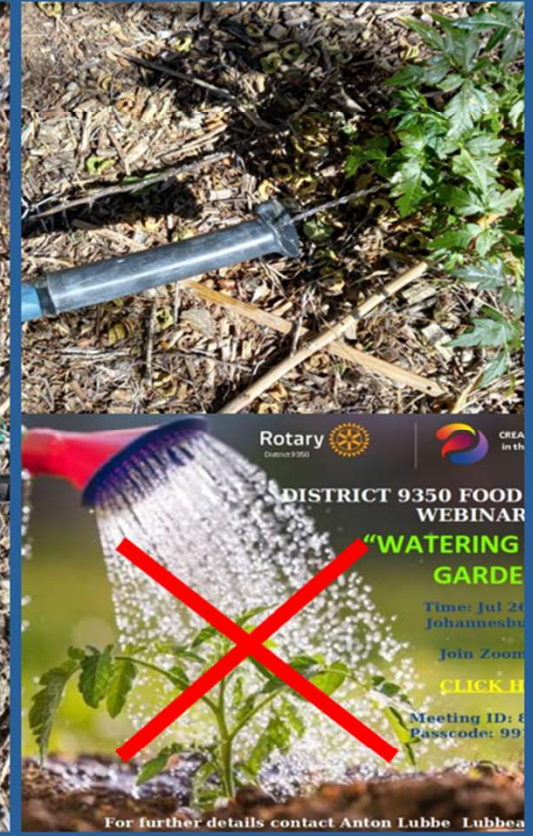
→ with a can you know how much water you give

→ make your own long spout with plastic pipe sealed

- and a hole or 2 in the tip
- long – allows to water at stem

Many plants do not like wet leaves

- leads to pest infestation



WATERING A FOOD GARDEN

• Hose Pipe + Technics

Use garden hose pipe IF
→ you add a stop-nozzle + a
piece of hose for stem
watering

TIP: put a cut coke bottle in soil
to avoid washout soil from
water stream

→ add water flow measure to
hose for measuring amount of
water given

3R → make your own mini
watering can for mini garden



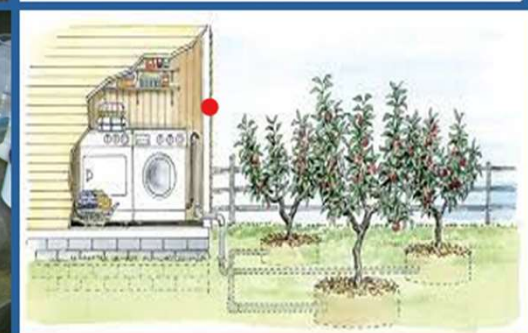
WATERING A FOOD GARDEN

• Select Water Source

Alternative water sources are:

- grey water tank from bathroom (NOT kitchen!)
- rain water collection tank
- catch run-off water when waiting for hot water to come
 - store in any container for later
- from washing machine

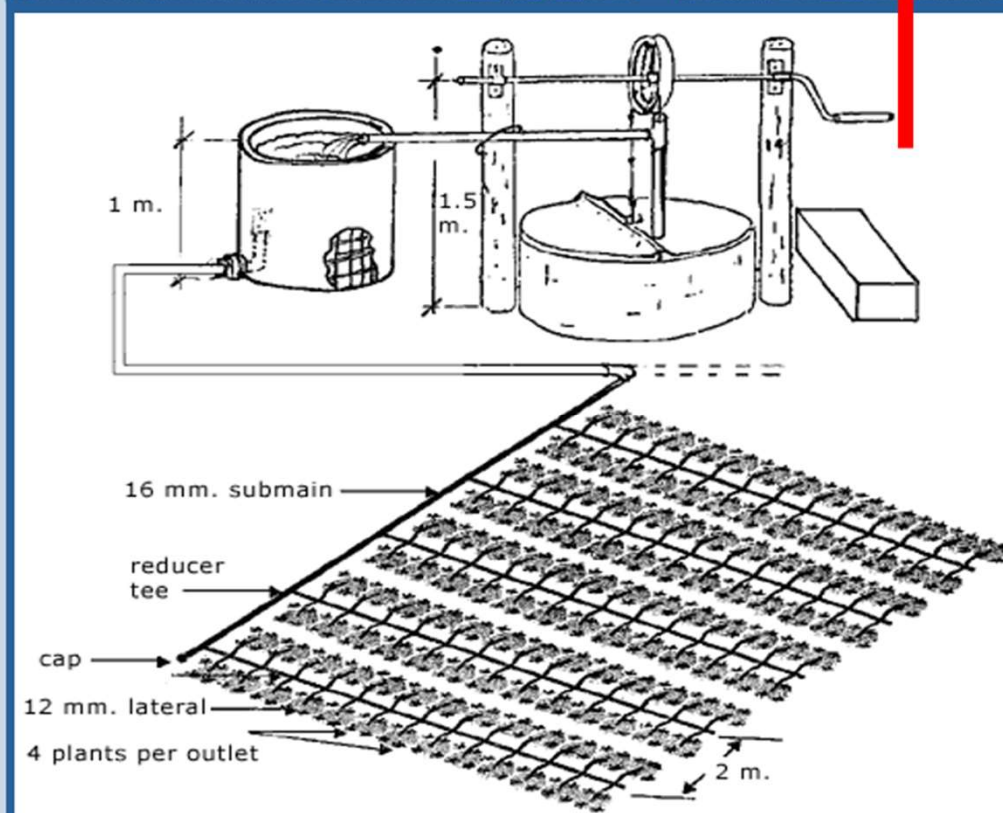
NOTE: use grey water only for plants where you do not eat the leaves or roots!



WATERING A FOOD GARDEN

• Large Garden Saving

For larger gardens some kind of automation is needed
I call it 'manual automation'
→ full automation would be a drip irrigation system
• problem: drips clog due to lime deposits – regular maintenance required
→ the 'African irrigation system' uses only simplest and cheap equipment



WATERING A FOOD GARDEN

• Simple Preparation

What is needed:

- class 3 black pipe 15mm
- T-pieces 15mm
- stop taps plastic
- reducer feeder line to irrigation line 30mm to 15mm

How to?

- cut pieces of black pipe and heat one end over fire
- squeeze the soft end to seal
- punch hole in tip with hot wire → ready for T-piece



WATERING A FOOD GARDEN

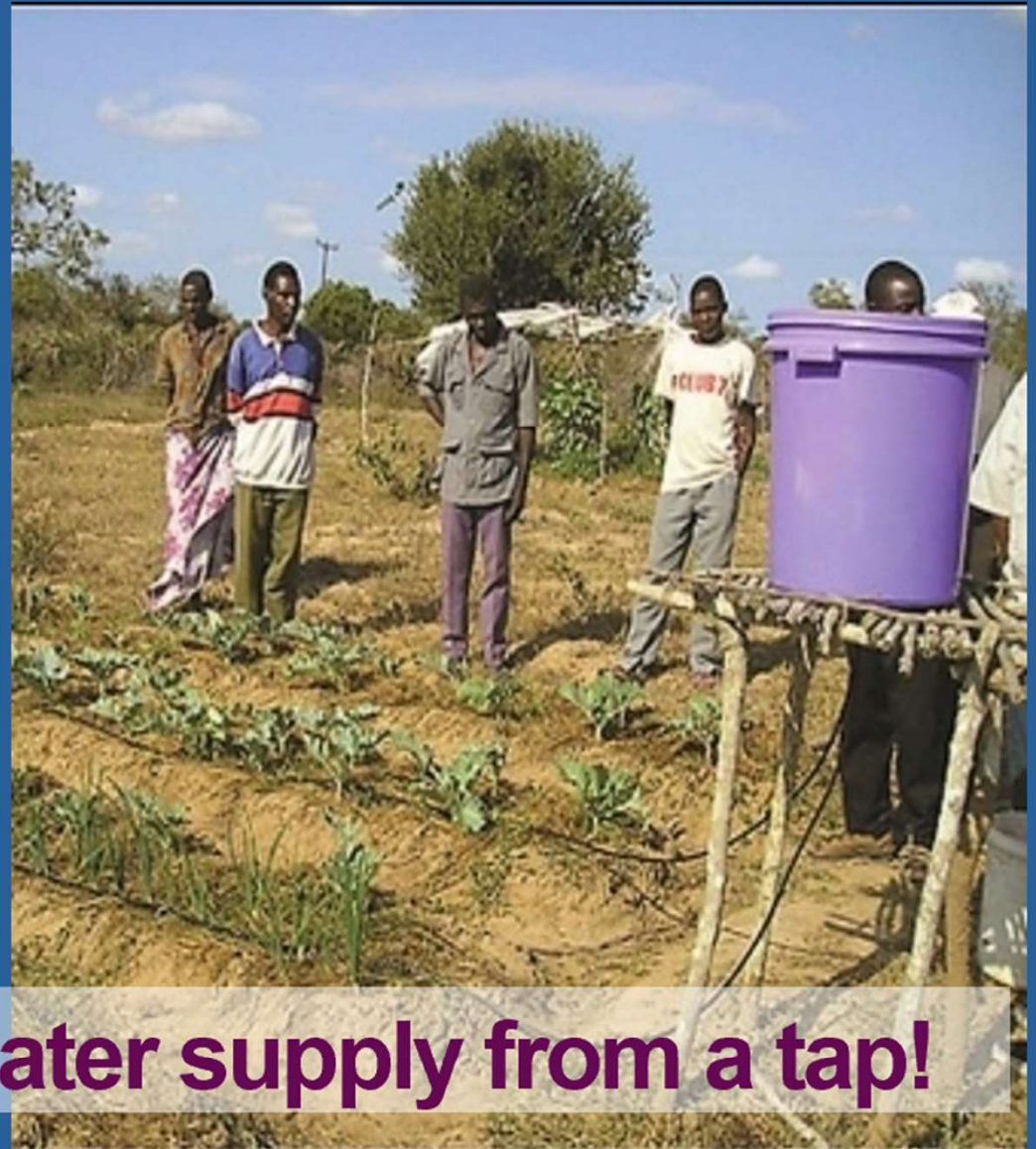
• Simple Assembly

How to?

- make plant beds (dams) for small watering sections
- lay out pipes, starting at feeder line
- connect all parts and secure connections with binding wire
- add mulch
- add the 'watering bottle'
- ∅ Test system line by line to check for leakage



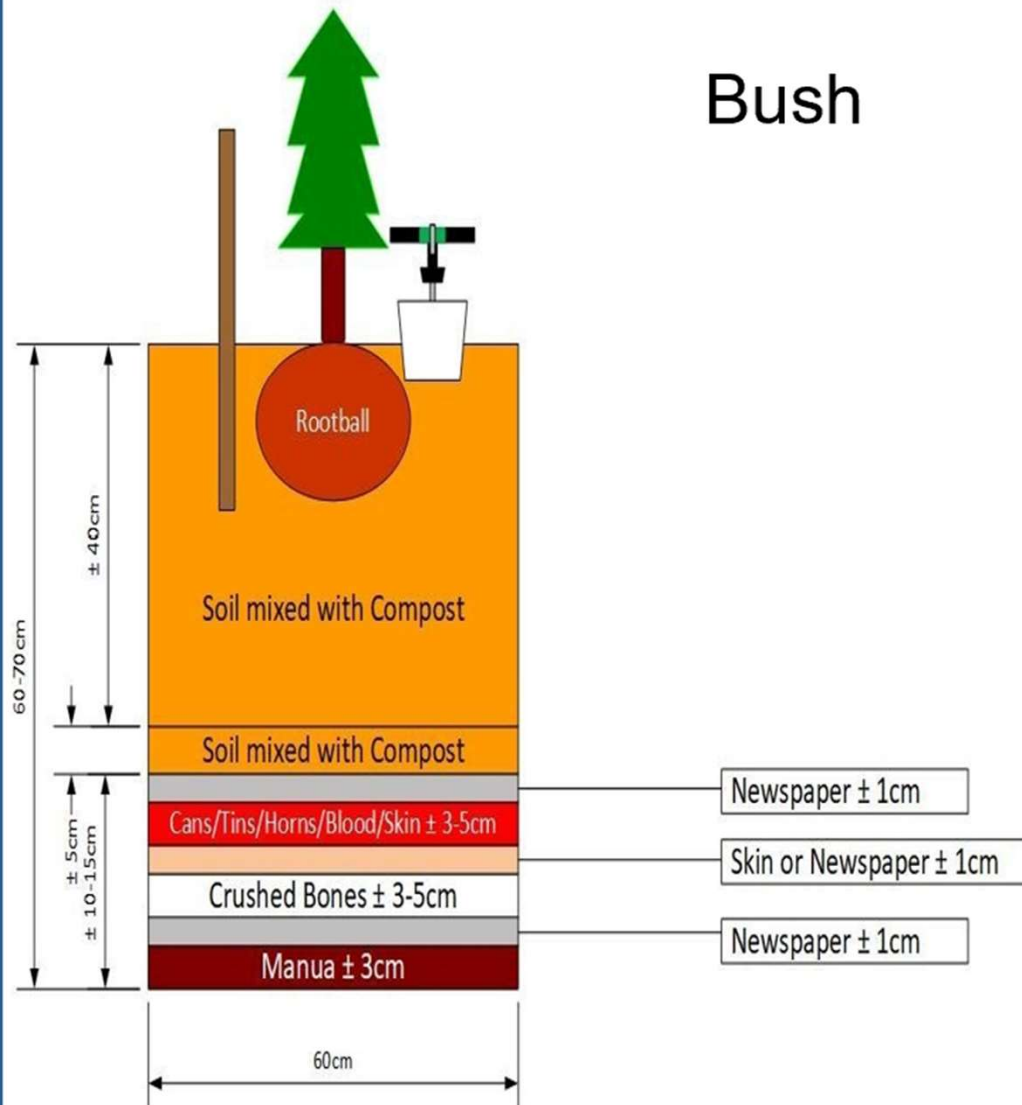
Real African Irrigation Systems



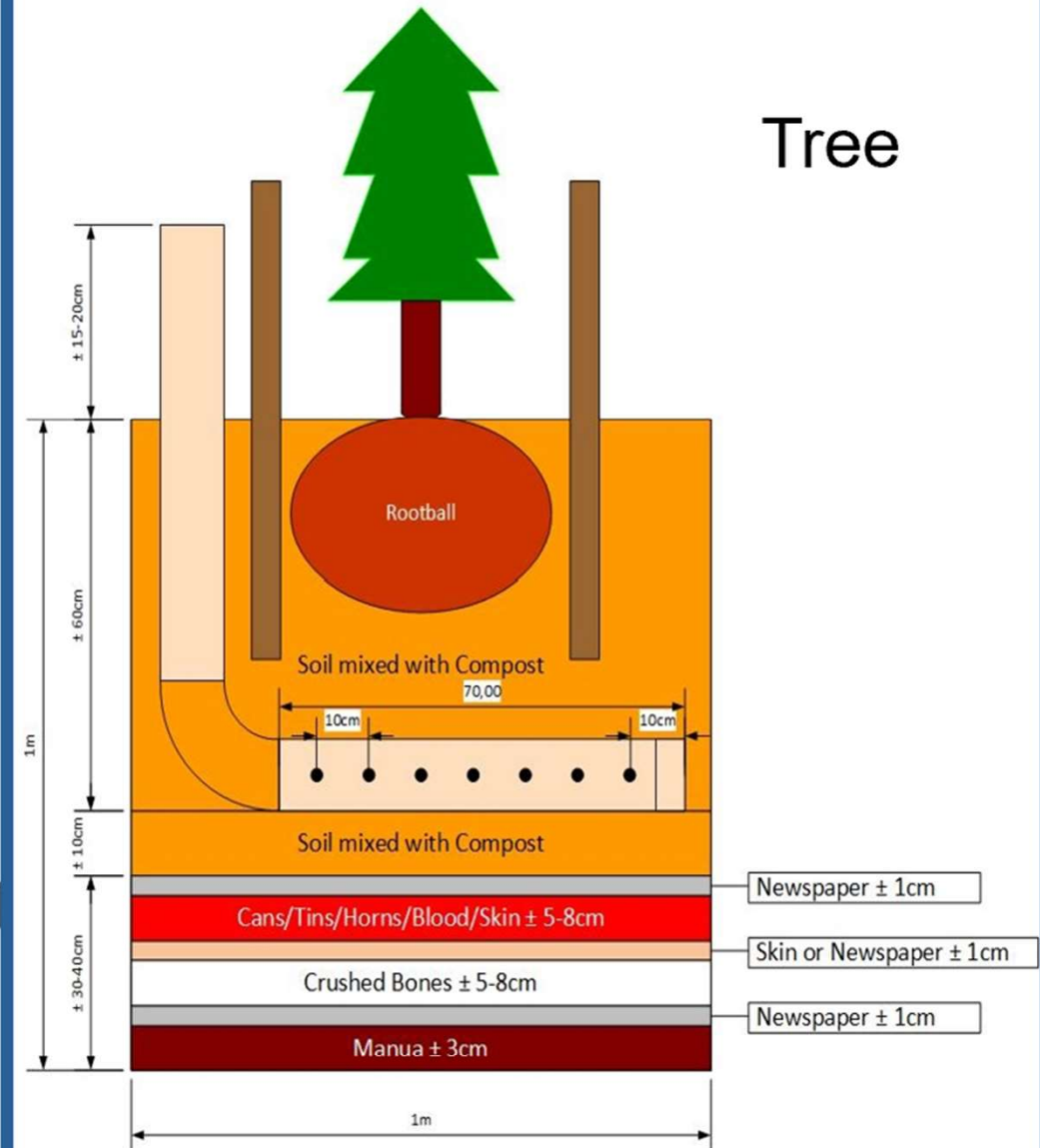
No need for constant water supply from a tap!

Proper Bush and Tree Beds

Bush



Tree



WATERING A FOOD GARDEN

• Plant Bed Materials

How to?

Use standard sewage pipes & elbows & lids

→ cut pipes to measure

→ drill holes in ½ of the pieces

→ add lid to the pc w/ holes

→ assemble with knee

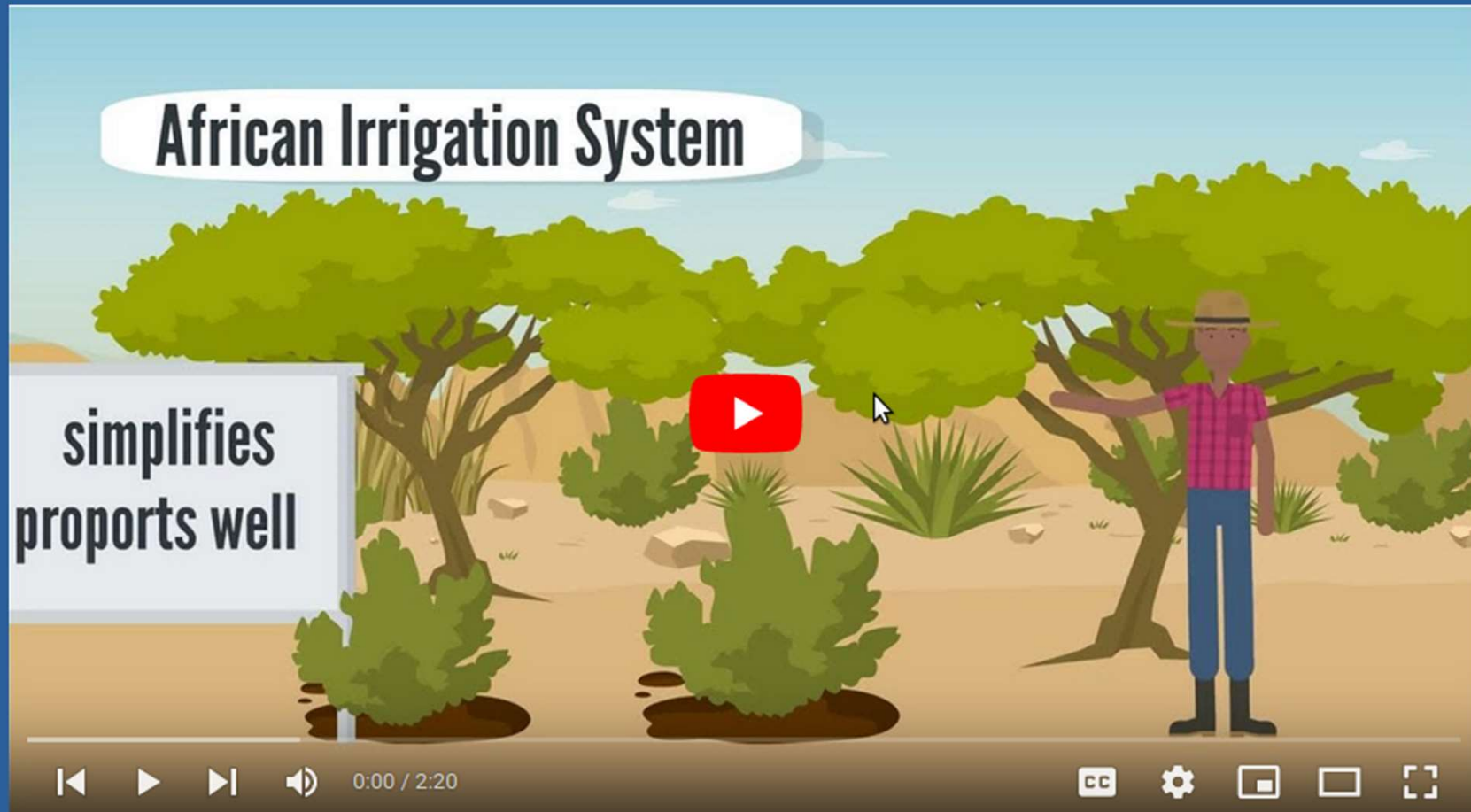
ø ready tree

watering 'device'



WATERING A FOOD GARDEN

- The Correct Way to Water



<https://www.youtube.com/watch?v=pWlatj3dHTc&list=PLHuyYO6x3qSH10yK7c5W3GAF8YI81p0fL&index=6>

WATERING A FOOD GARDEN

• Proper Plant Bed

Why do bushes & trees simply
chucked into a hole and
covered with soil not survive?

→ they miss the nutrients

→ they are watered from the
top, roots go dry

What do you need as filling in
layers:

→ manure, bones & skins, tins,
horns, blood

→ lots of newspaper & mulch
ø water well, then plant



WATERING A FOOD GARDEN

- The Correct Way to Plant a Tree / Bush



<https://www.youtube.com/watch?v=4azIJJWig7U&list=PLHuyYO6x3qSH10yK7c5W3GAF8YI81p0fL&index=3>

Questions



Carpe Diem

Food Garden Watering System

utilising rain water

Gerhard Eggers
(RC George)



Carpe Diem

“Don’t wait for extraordinary opportunities, seize common occasions and make them great.”

- Orison Swett Marden.

This exactly what the Rotary Club of George is doing



What is CARPE DIEM

- an integrated education centre
- For mentally and physically disadvantaged children
- Handi-capped, Wheelchair bound, Autistic ,Downs Syndrome.

What is Our Rotary Carpe Diem Project

- Two areas at the School where Rotary can make a difference:
 - Teach the Learners a useful life skill to grow vegetables
 - Create long term sustainable food gardens for it's canteen.



Carpe Diem School layout



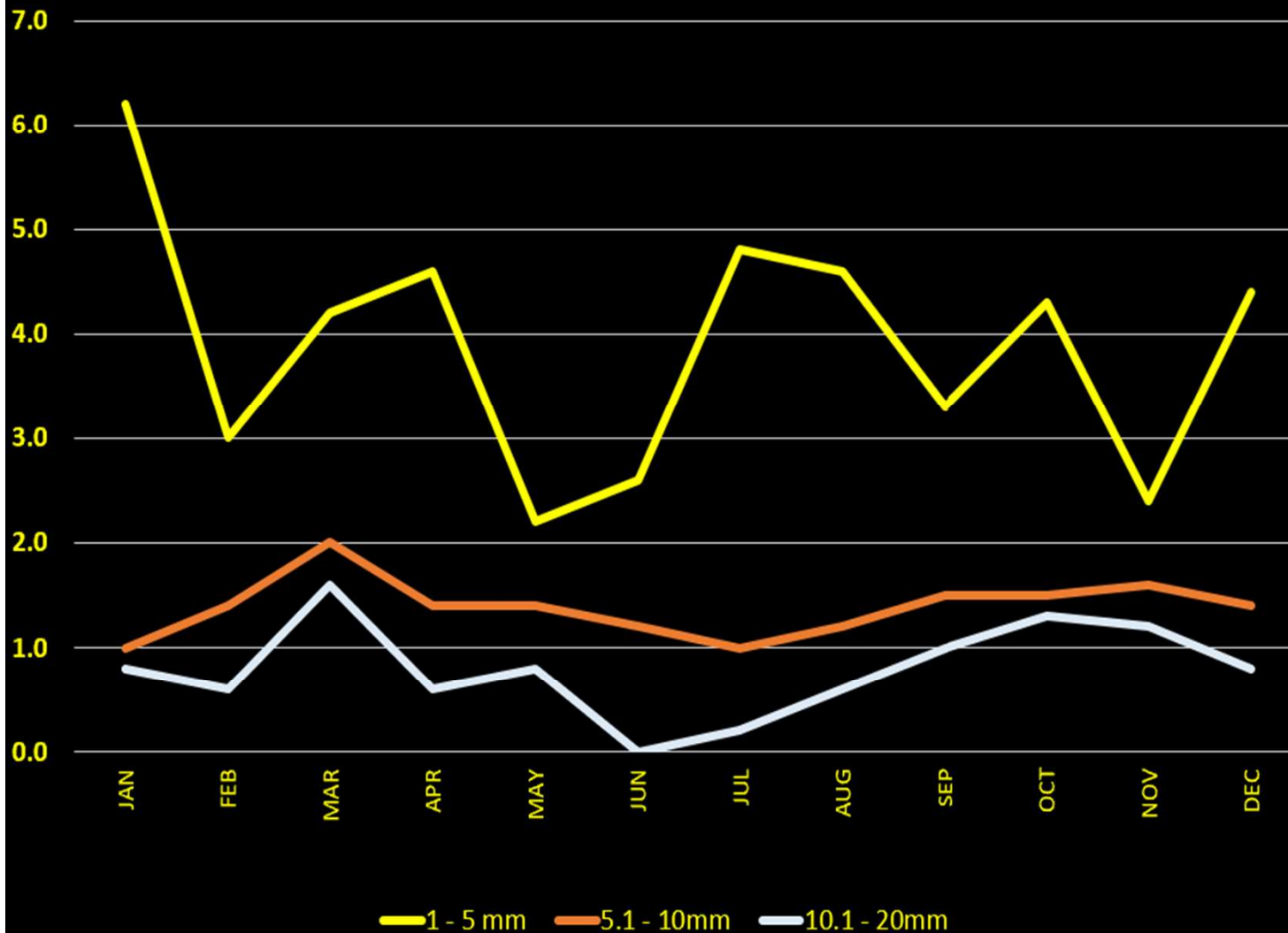


5 x 5000 litre water storage tanks

Last 30 days

Require over 60mm of rain on existing roof rain to fill all tanks

Average number of rain days



Average 124 rain
days p.a

Year total 231 to 550
mm



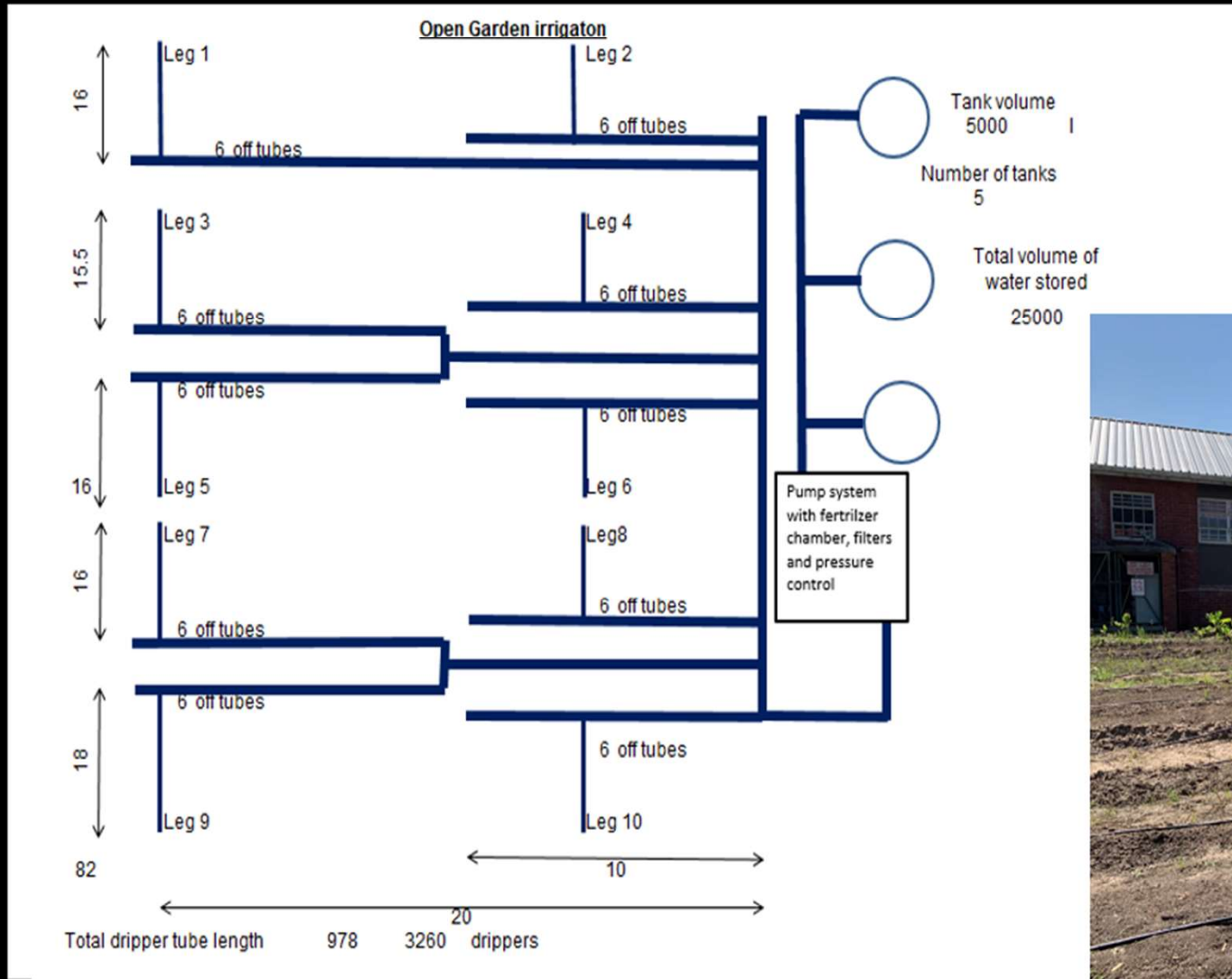
Description of food garden

- Covers an area of 1500 m² of which 1160m² is irrigated
- Planting mielies, beans, sunflower pumpkins and gem squash in summer.
- Planting broccoli, cabbage , carrots, beetroot in winter
- Spinach is planted throughout the year
- Cucumbers are planted in a tunnel



20mm Drip irrigation system providing 800 litre water per day

168000 litres of water are required in hot and dry months





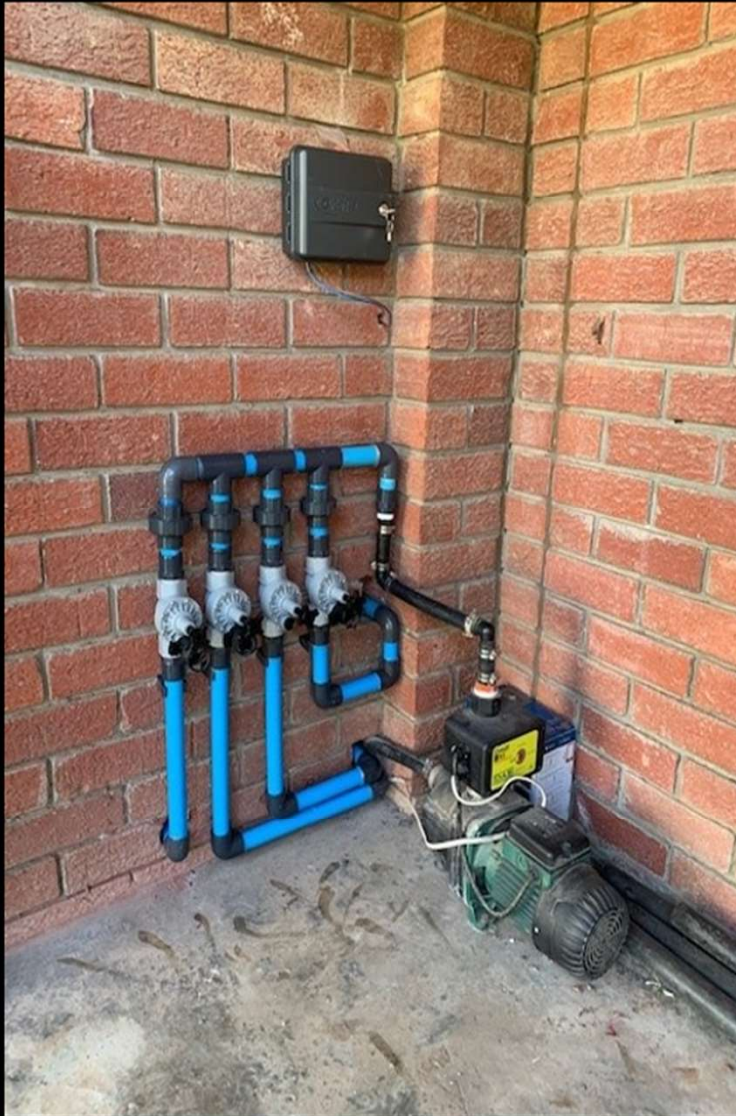
Getting the food garden going again with compost.



Deteriorated plastic sheeting tunnel

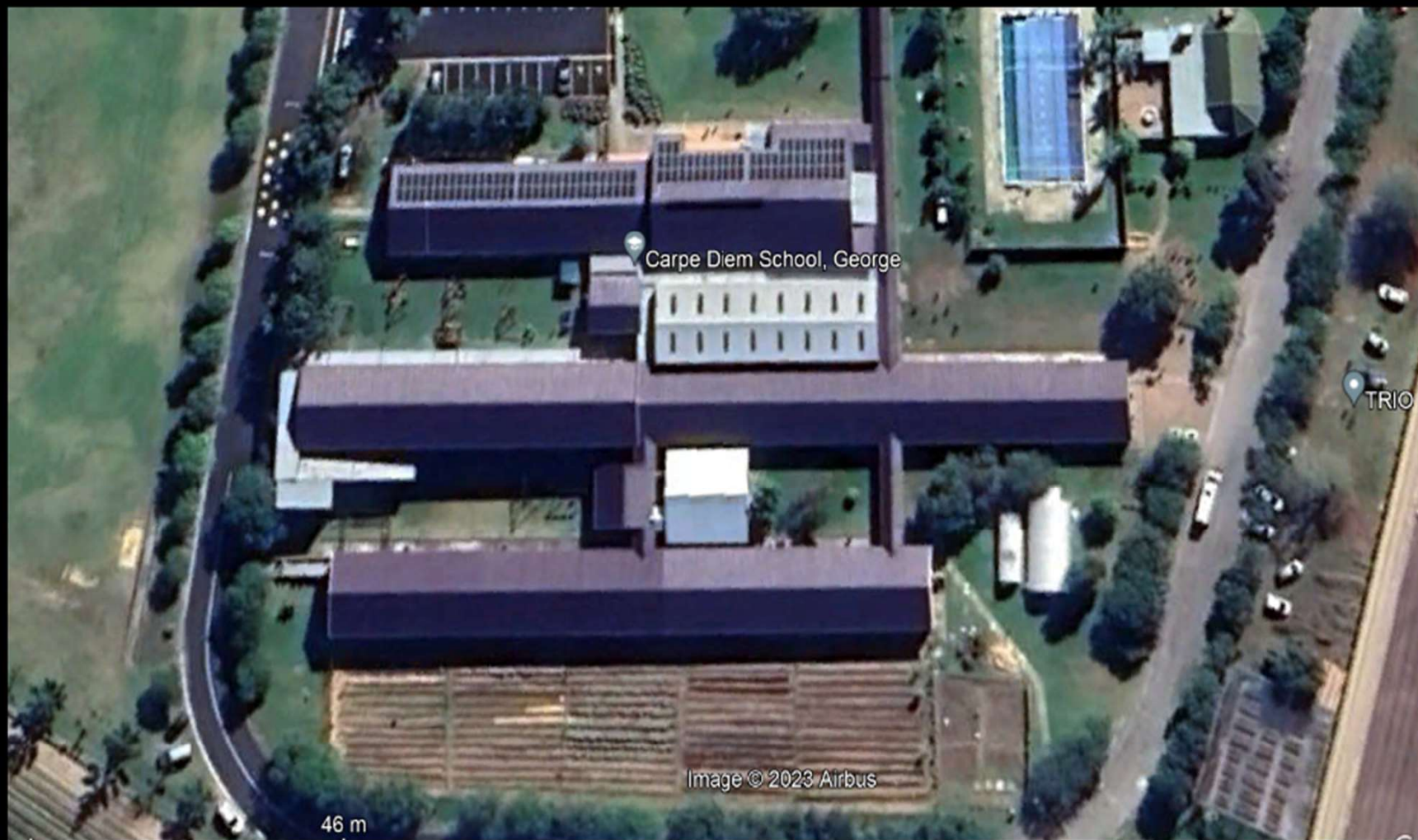


Brede-Gouritz Catchment Management Agency provided a grant to upgrade the irrigation system on the food garden, provide shade netting over a bricked up garden for wheelchair bound learners and the re-sheeting of the tunnels. This had a budget of R200 000.



Automated irrigation system

Re-sheeted tunnel for cucumber plants.



With the size of the roof area of roughly 3500 m² and 1 mm of rain, we would expect 2500 litres of water run-off, allowing for evaporation

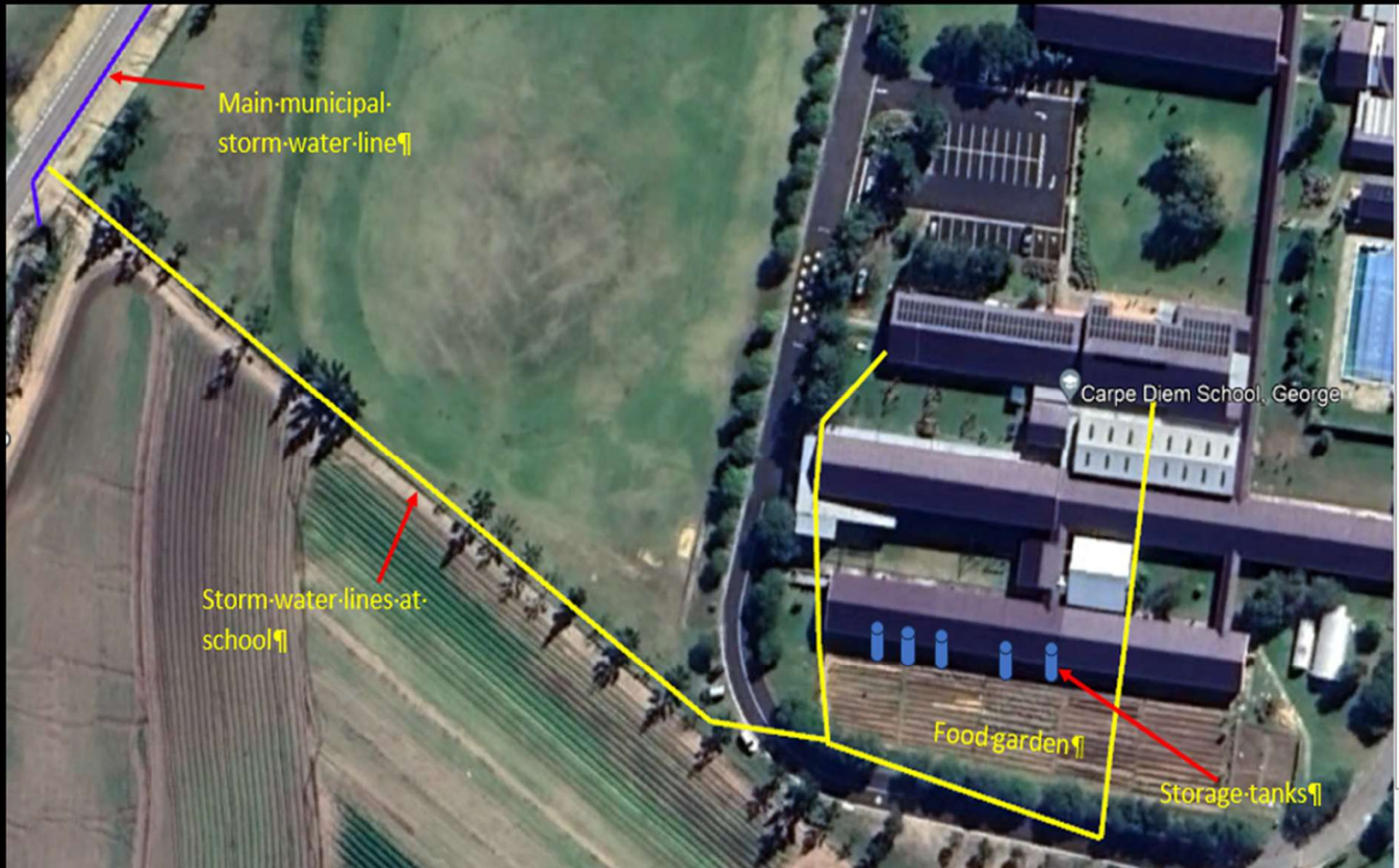
Water from
downpipes run
into gutters
which in turn
runs into
gullies





Gullies also collect
water from paving

Carpe Diem school layout

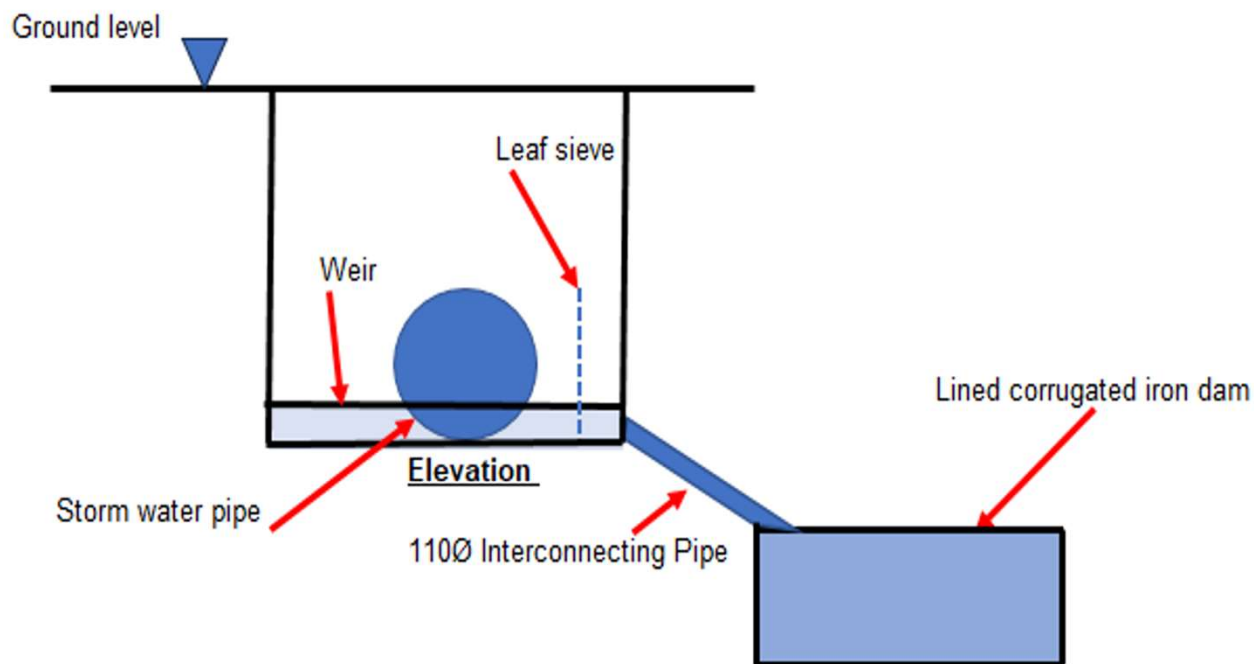
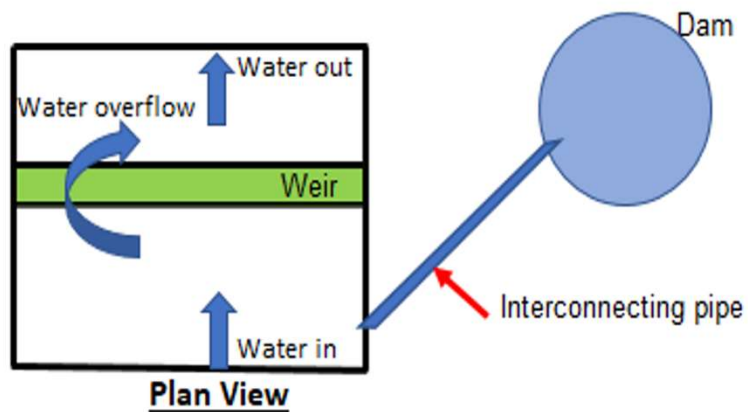


Schematic of
storm water
lines in
yellow
connect to

Main
municipal
line

Rainwater
discharging into
the storm water
line





Manhole in storm
water line

Low weir

Install
interconnecting
pipe

Drain into dam

COVERED DAM



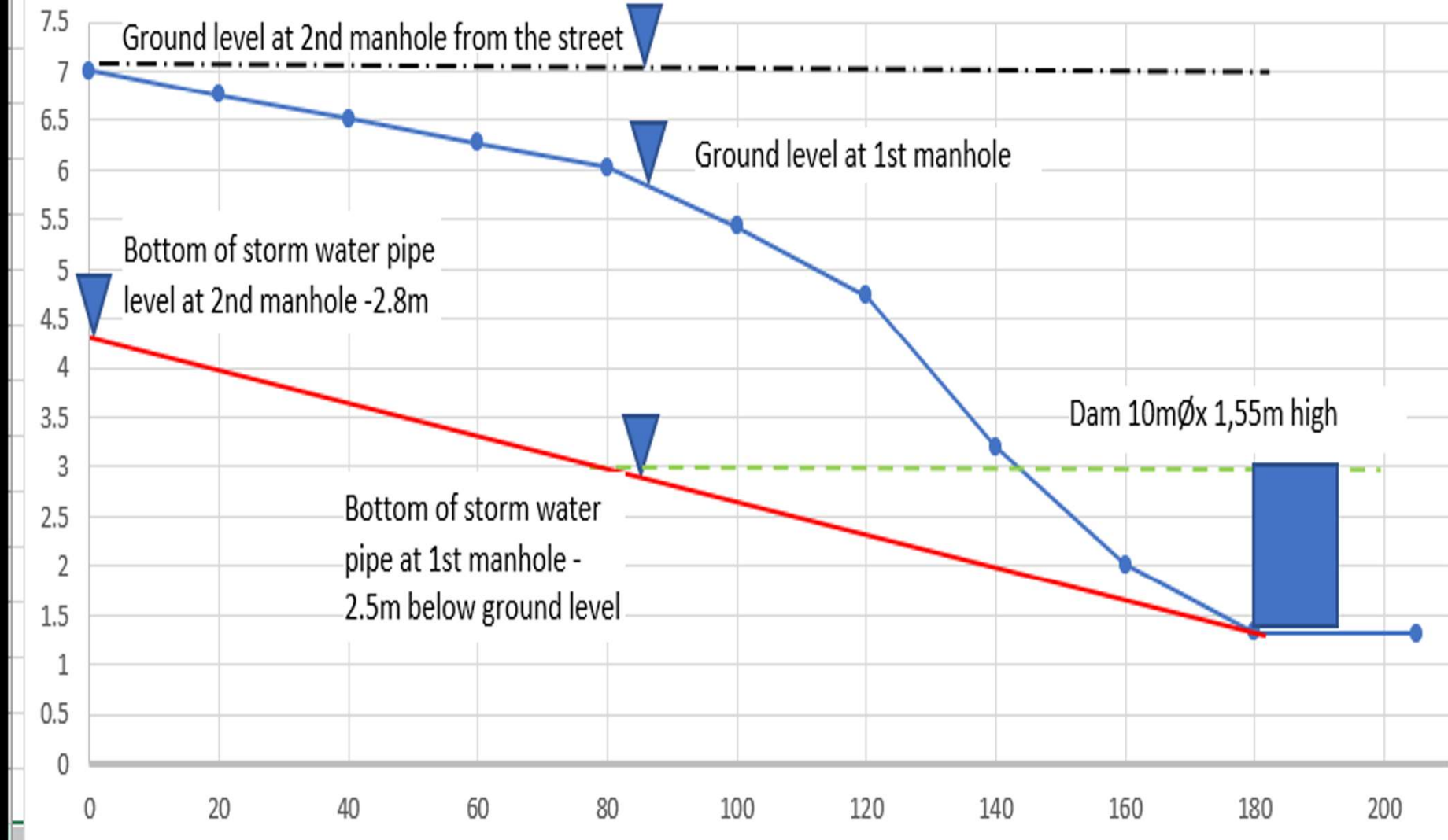
110 000 litre capacity
dam

44 mm of rain
required to fill

Last 4.5 months



Ground elevation relative to storm water pipe





Vegetable garden



Preparation for planting



Learners weeding

Learners seeding

Questions



Home Gardening Tips

Michelle Nel

(RC Helderberg Sunrise)



Gardening Tips

Soil Structure & Water Storage



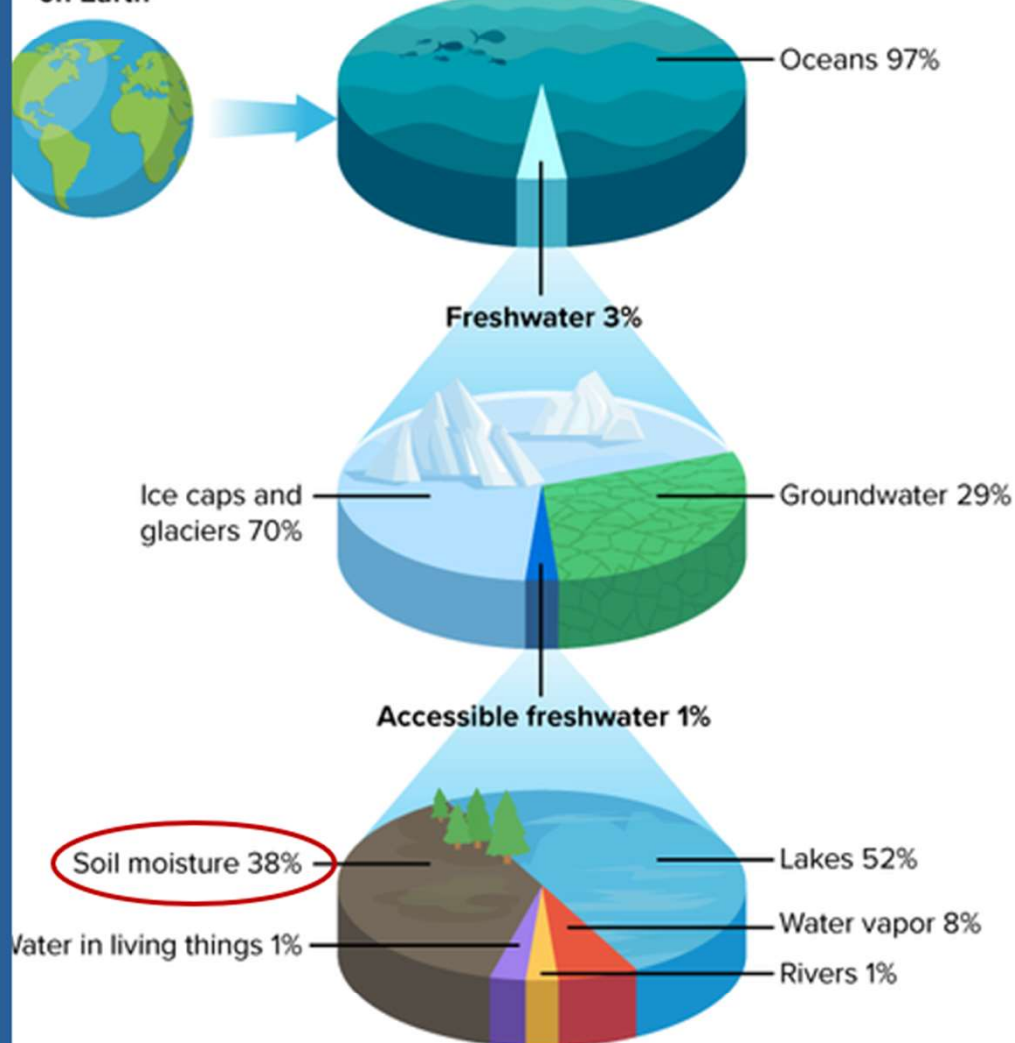
Gardening Tips

So, where is our water?

*Fresh water is only **3%** of all water on Earth.*

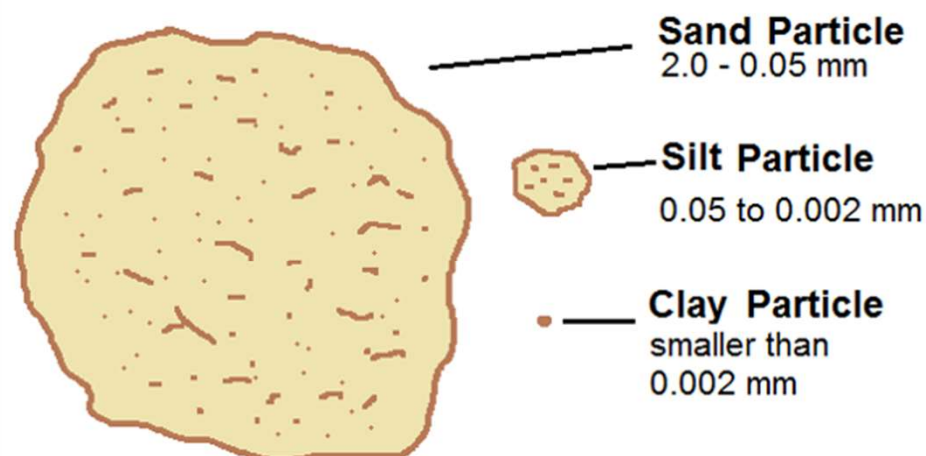
Storage	% of Fresh Water
Ice & Glaciers	75
Ground Water > 800m deep	13.5
Ground Water < 800m deep	11
Lakes	0.3
Rivers	0.03
Soils	0.06
Atmosphere (in circulation)	0.035

Total water on Earth



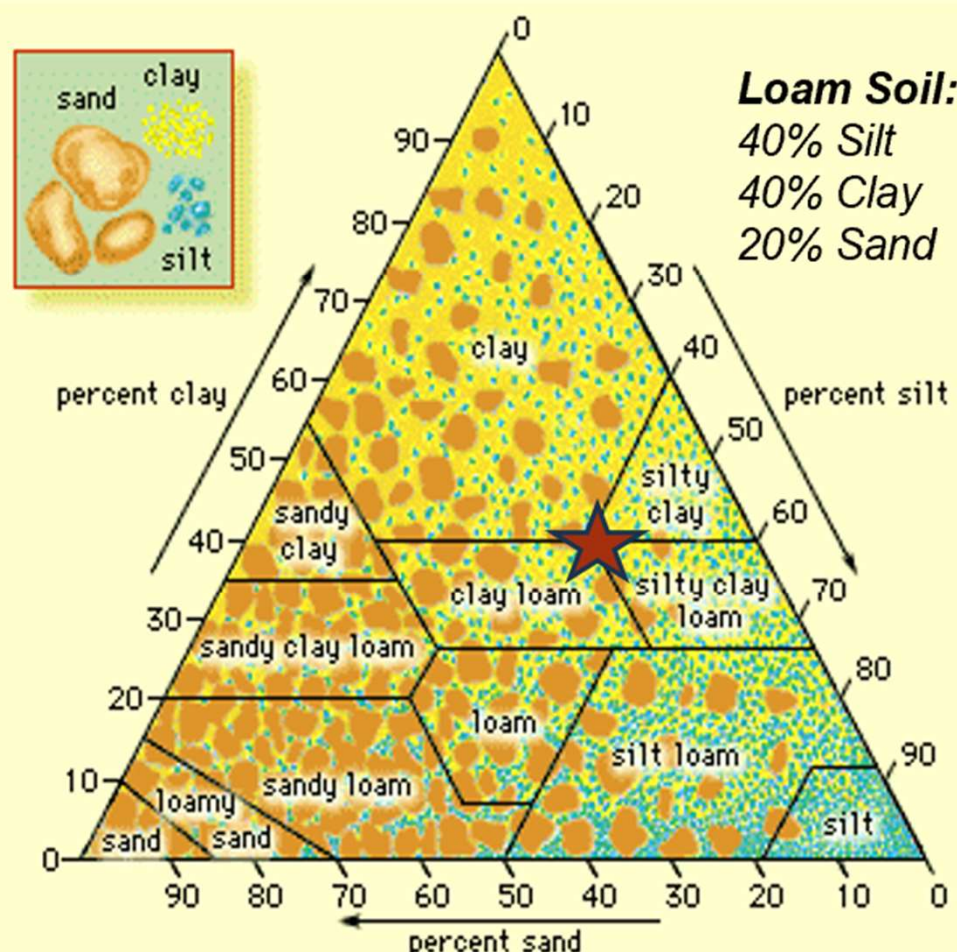
Gardening Tips

Soil Structure



Property	Sand	Silt	Clay
Soil Fertility: Ability to sustain plant growth	Low	Moderate-High	Moderate-High
Porosity: Air spaces (gaps between particles)	High	Moderate-High	Low
Permeability: Ability for water to flow through the soil	High	Moderate-High	Low
Water Holding Capacity: Ability to hold water against the force of gravity	Low	Moderate-High	High

Soil Texture Triangle

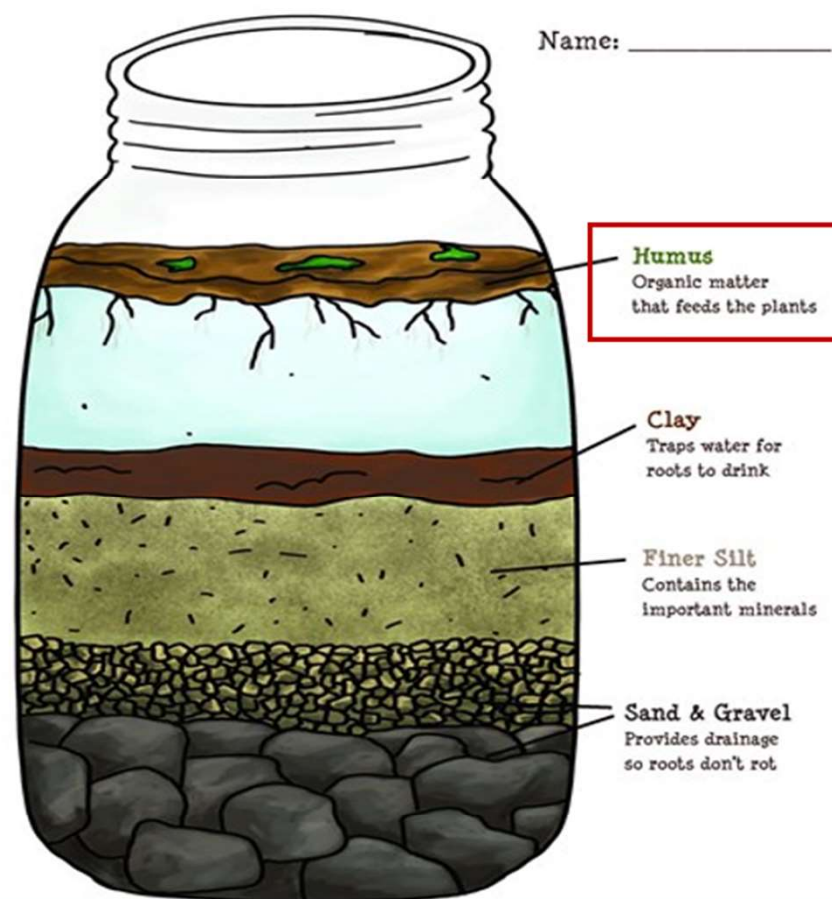


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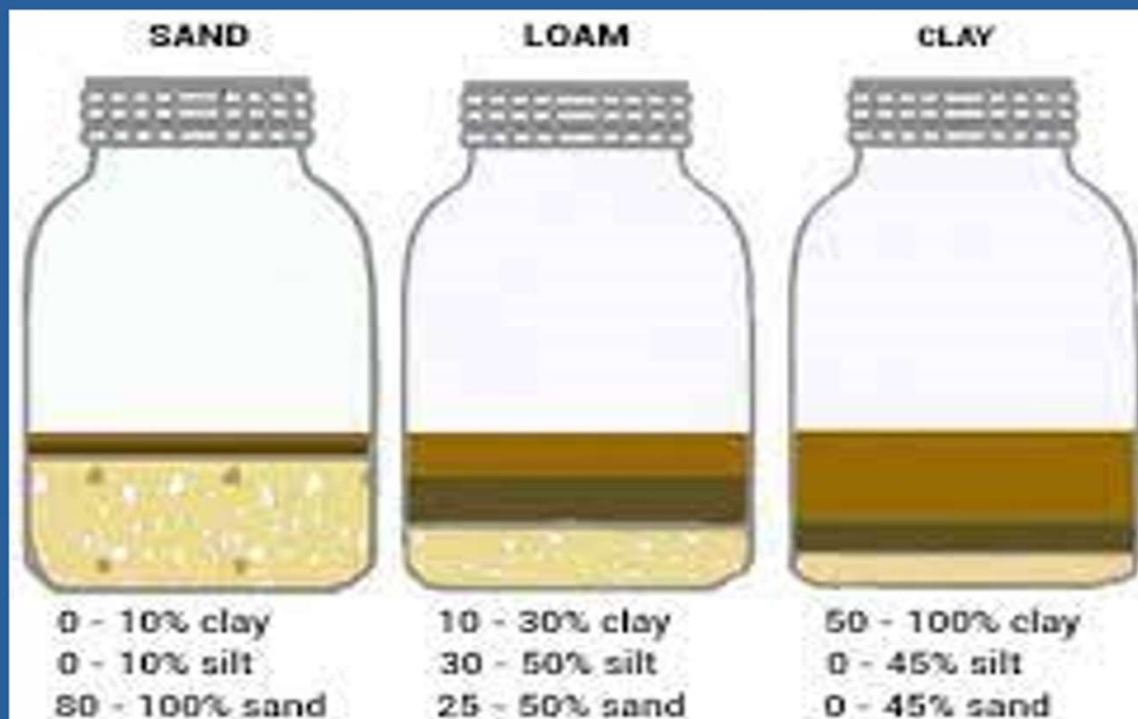
Gardening Tips

Soil Jar Test at Home

The Layers of Soil



Most common garden plants prefer loam — soils with a balance of different-sized mineral particles approximately 40% sand, 40% silt, and 20% clay with *ample organic matter and pore space*.



Questions



Closure

Anton Lubbe

