Substrate Caneberry Production

Why Substrate?

- Fumigants going away
- Grow control
- Market timing
- Protected agriculture- tunnels, glass houses, retractable roofs
- Farming in bad soils or a parking lot
- Increase yield
- Water saving
- Faster production system
- Long cane system- produce in 3-6 weeks

- Background
- Substrate types
- Container considerations
- Watering Data

RASPBERRY SUBSTRATE HISTORY

- World wide production increase in substrates
- 1985: peat moss substrates
- 1995: coir substrates
- 2006: Long Canes (floricane)
- 2010: Long Canes (primocane)
- Most common substrate is coir with coir fiber
- Nowadays more demand for Peat/Coir/Perlite mixes

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TRENDS IN RUBUS

- Increasing demand worldwide for fresh market
- Start material: plug plants/root material/long canes
- In EU: Long canes produced in colder (northern) climates
- Trend towards 'club varieties', primocane and floricane

GROWING METHODS IN EUROPE

- Motherplants
- Propagation
- Rootblocks and tray-plants
- Long Cane
- Crop production

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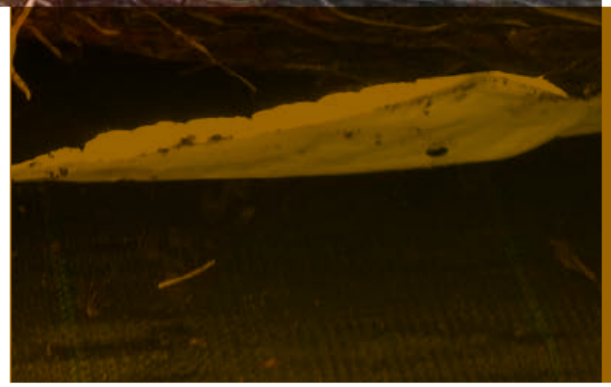
MOTHER PLANTS, GOOD ROOTS ARE ESSENTIAL



RASPBERRY PROPAGATION

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PLUG / TRAY PLANTS

LONG CANES

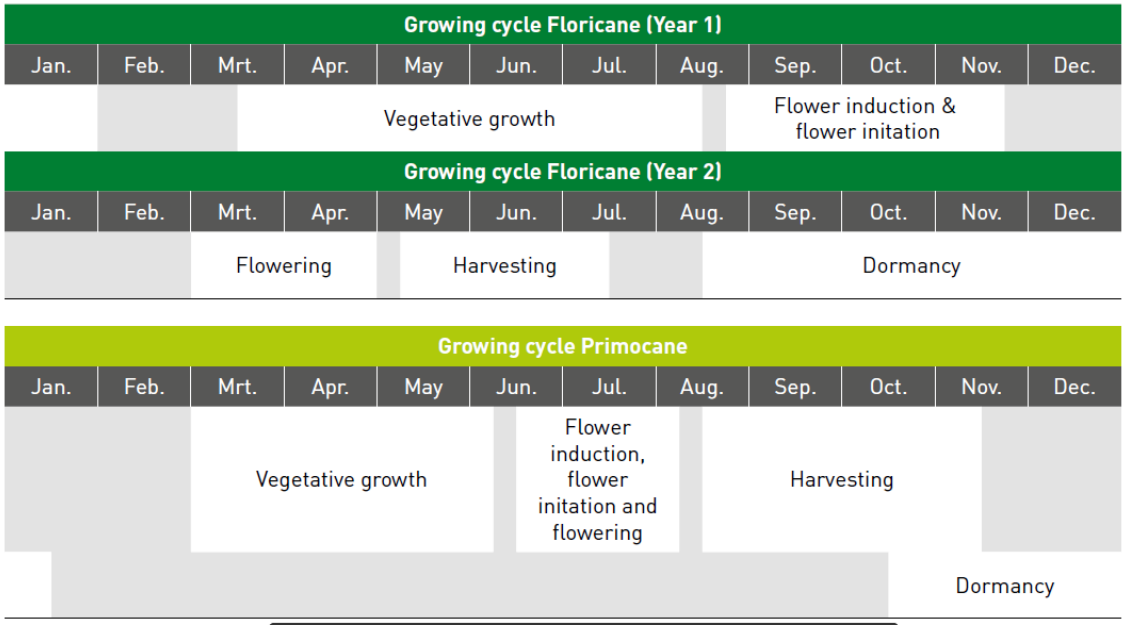
Long Cane production

- Grow plant in nursery
- Tip 1.5 meter tip
- Put in cold storage 6 weeks 1 degree C (winter)
- 2000 chillin' hours minimum
- Move to field when you are ready
- 1 month first fruit
- You can use this system to fill holes in production system


Mastercop
Mastercop

Production in Substrate

FLORICANE AND PRIMOCANE



Substrate Types

Legro basics for substrate development

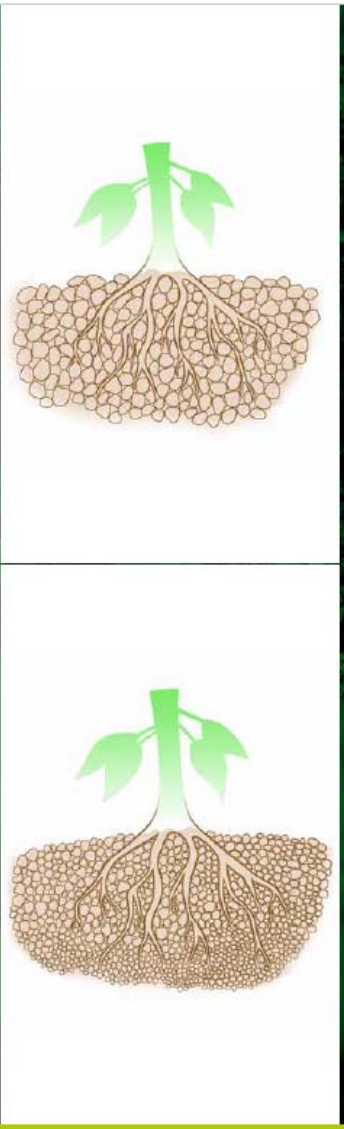
- Long term stability
- Optimal drainage
- pH level optimal
- Perfect air/moisture ratio
- Porosity of the substrate
- Skills of grower

Legro principles for building a substrate

Principle 1:

It's a misconception that coarse mixes have a higher porosity than the fine mixes.

The absence of fine particles will lead to a high air porosity.



Legro principles for building a substrate

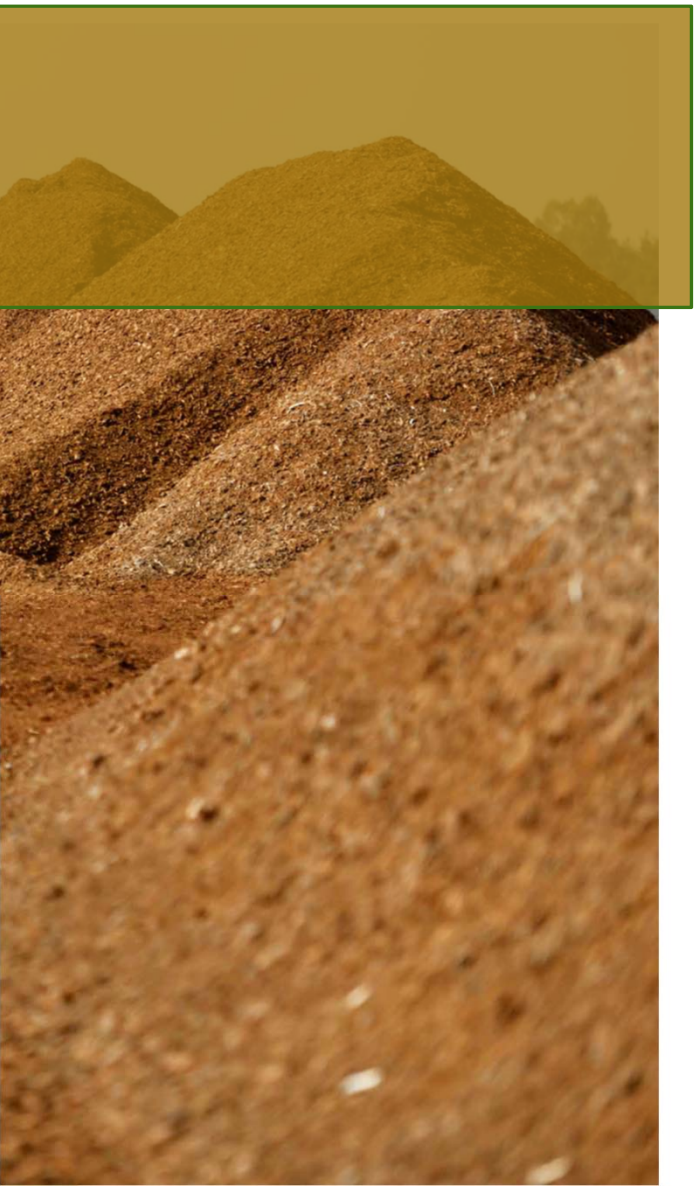
Principle 2:

Stability and drainage is crucial.

A grower can always bring water to the plant. To get water out of the pot is less easy.

Issues:

- Substrate
- Pot
- Type of floor (container field)



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SUBSTRATE DEVELOPMENT DEPENDS ON

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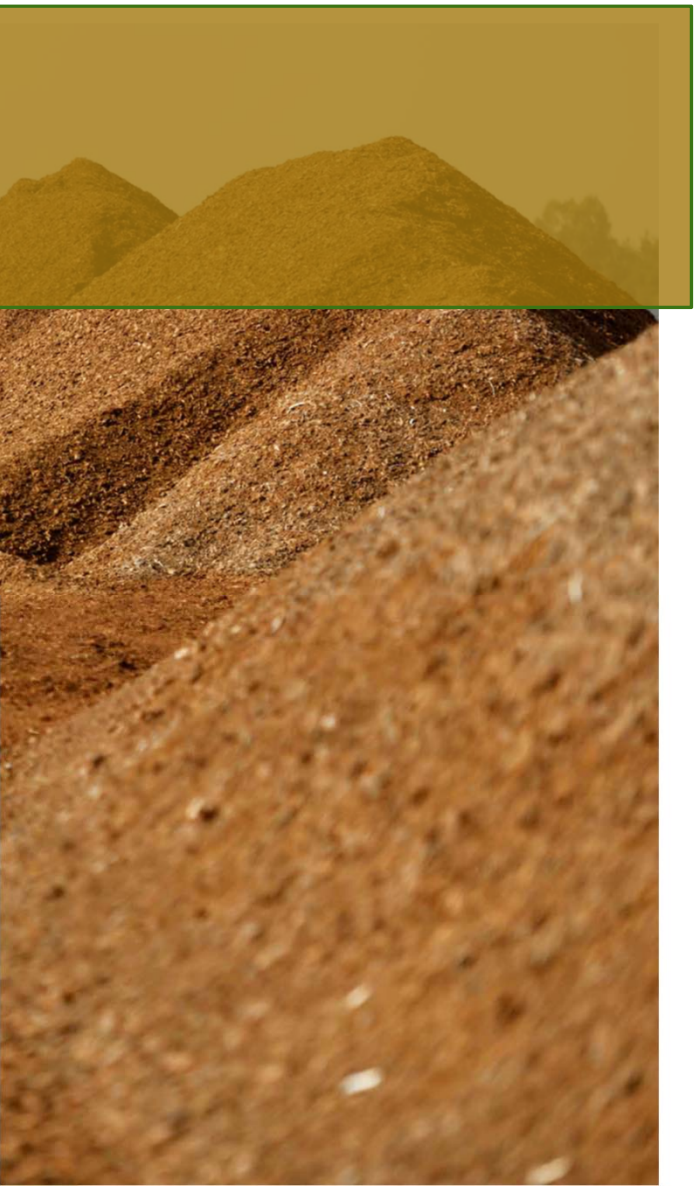
- Duration of growing period
- Pot size
- Water quality
- Climate



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SUBSTRATE DEVELOPMENT DEPENDS ON

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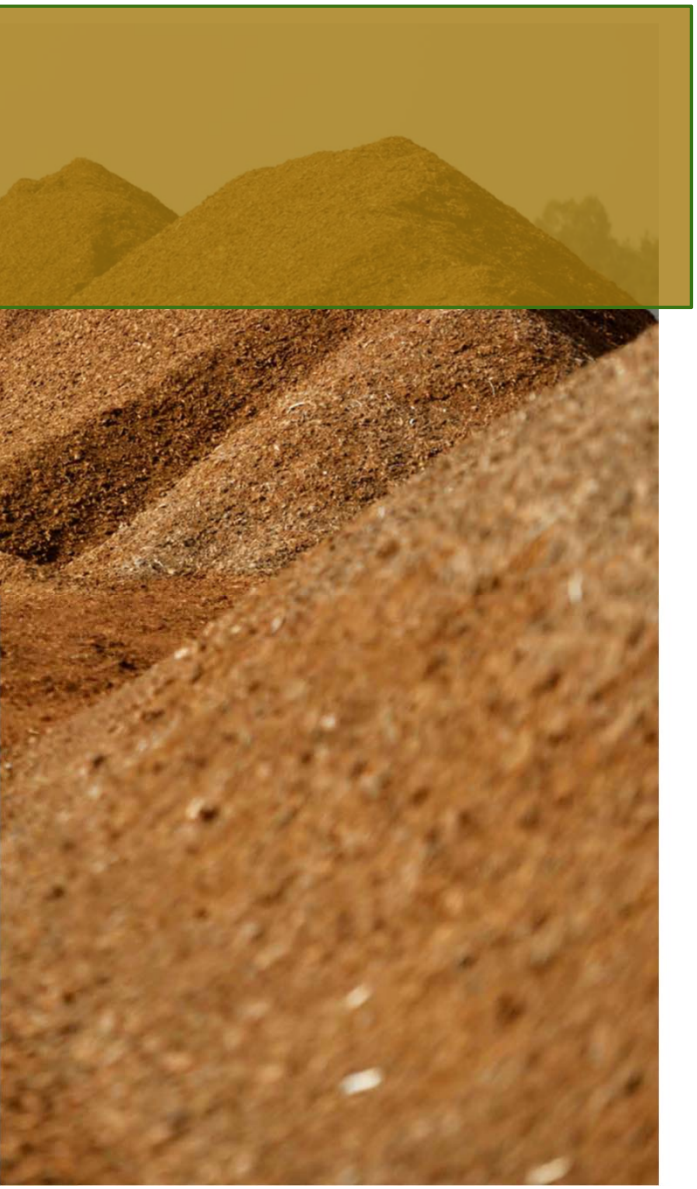
- Fertigation possibilities
- Irrigation, discipline and attitude (dry or wet)
- Type of fertilizer



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SUBSTRATE DEVELOPMENT DEPENDS ON

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- Experience with substrate growing
- Experience with types of substrates
- Volume and packaging
- Growing in greenhouse, tunnel, ….
- …

Substrate types

Coir

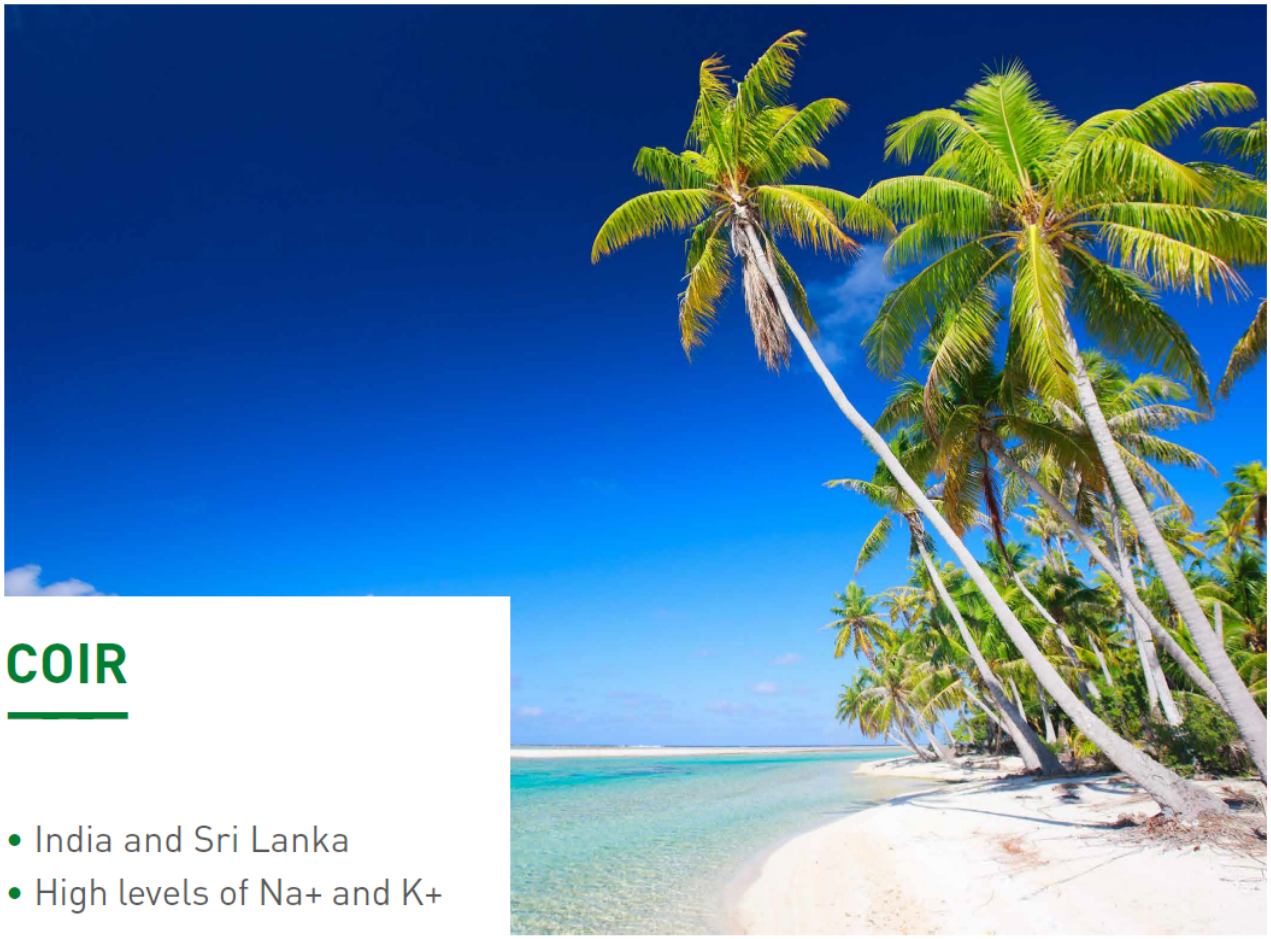
- Pith
- Fiber
- Chips

Peat

- Block Peat
- Milled peat
- Black (old) or White (new)

Blends

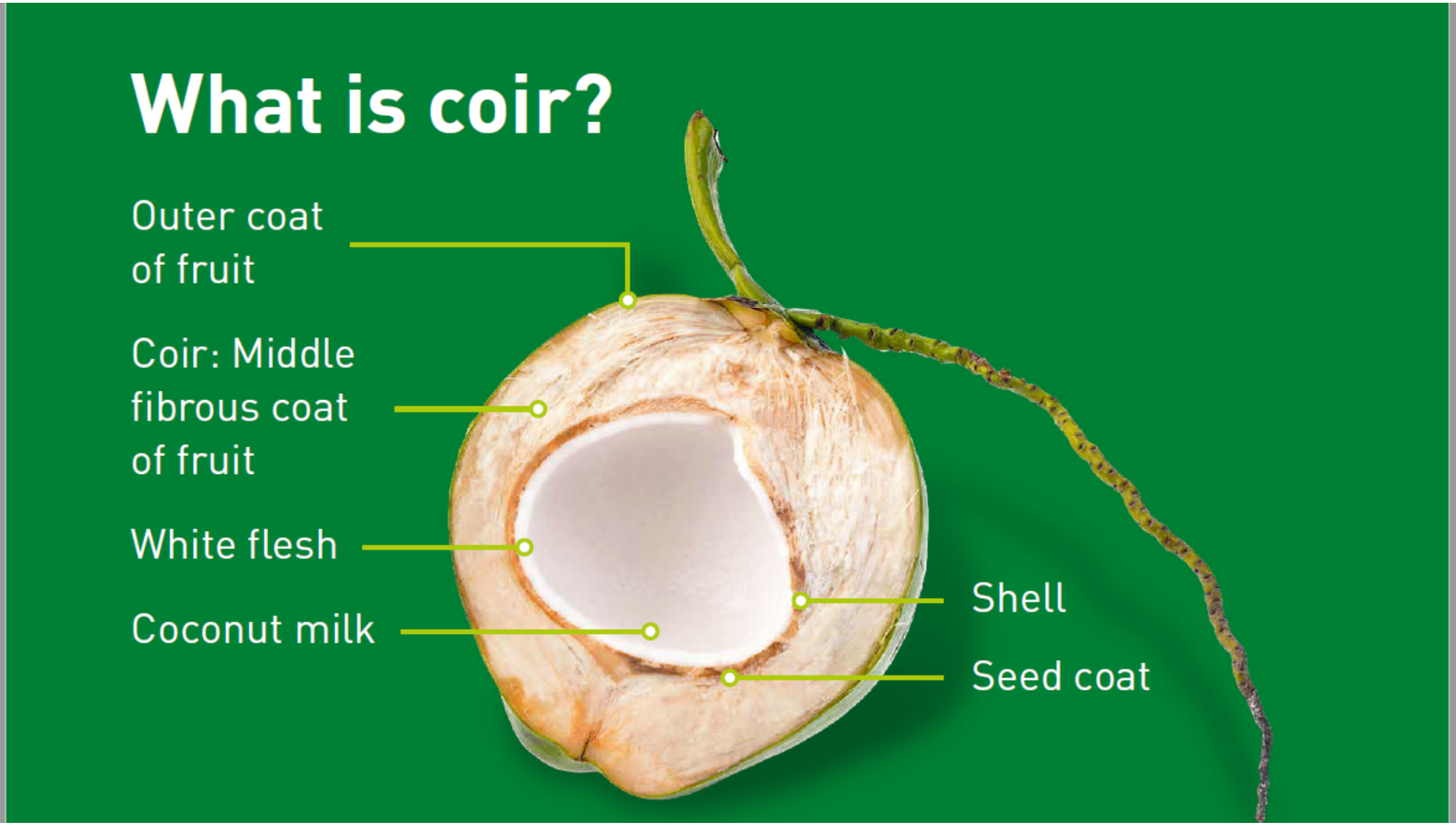
- Peat- milled and block
- Peat - Coir
- Peat – Coir - Perlite
- Coir -Perlite



COIR

- India and Sri Lanka
- High levels of Na+ and K+

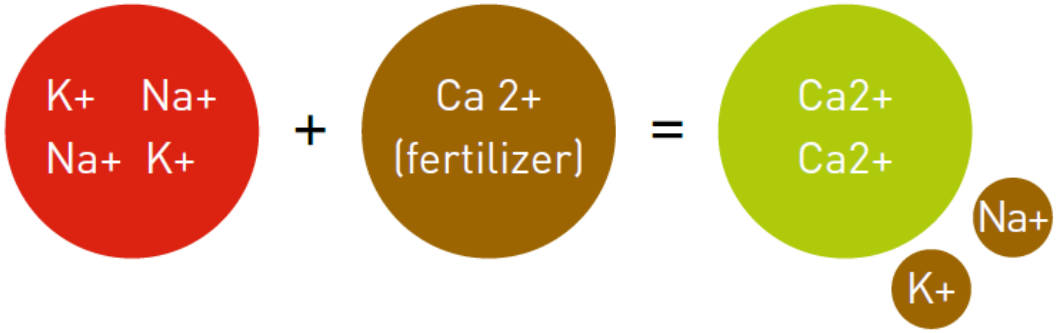
What is coir?


Outer coat of fruit
Coir: Middle fibrous coat of fruit
White flesh
Coconut milk
Shell
Seed coat

Fiber Extraction

Coir Production

PROCESS OF BUFFERING



RAW MATERIAL DEFINITION

Harvest method
Milled Block peat
White peat Milled white peat (screening)
Block peat (fractions)
Black peat Black peat -

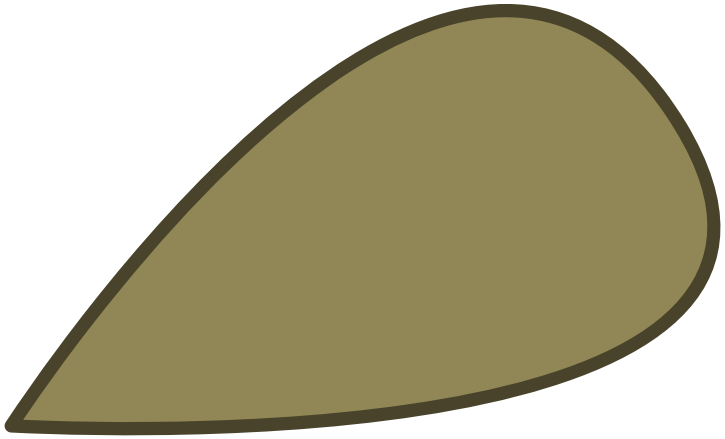
SPHAGNUM

Over 200 species

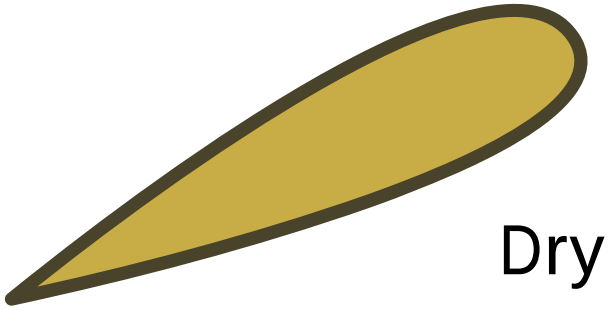
- 9 species, 3 groups
- When water drains out, cell structures collapse
- Peat moss is irreversible

PEAT MOSS CHARACTERISTICS

- The cells filled with water
- Drying cells shrink.
- The trick is to dry slowly
- If the peat is too dry, it will be hard to it wet again: hydrophobic



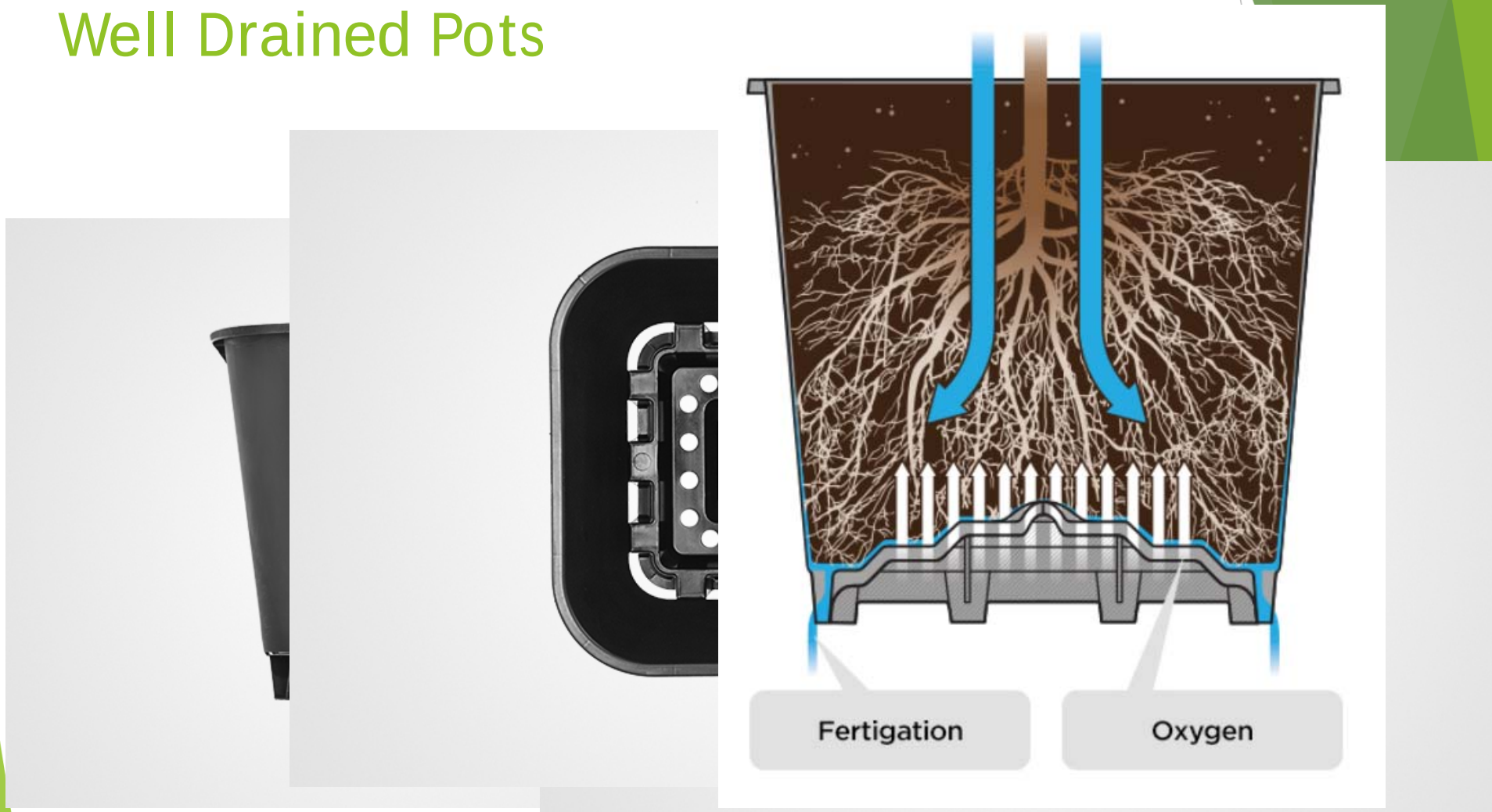
Wet Peat



Dry Peat

Container considerations

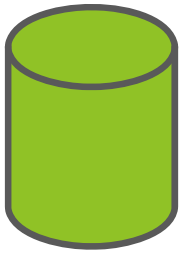
Well Drained Pots



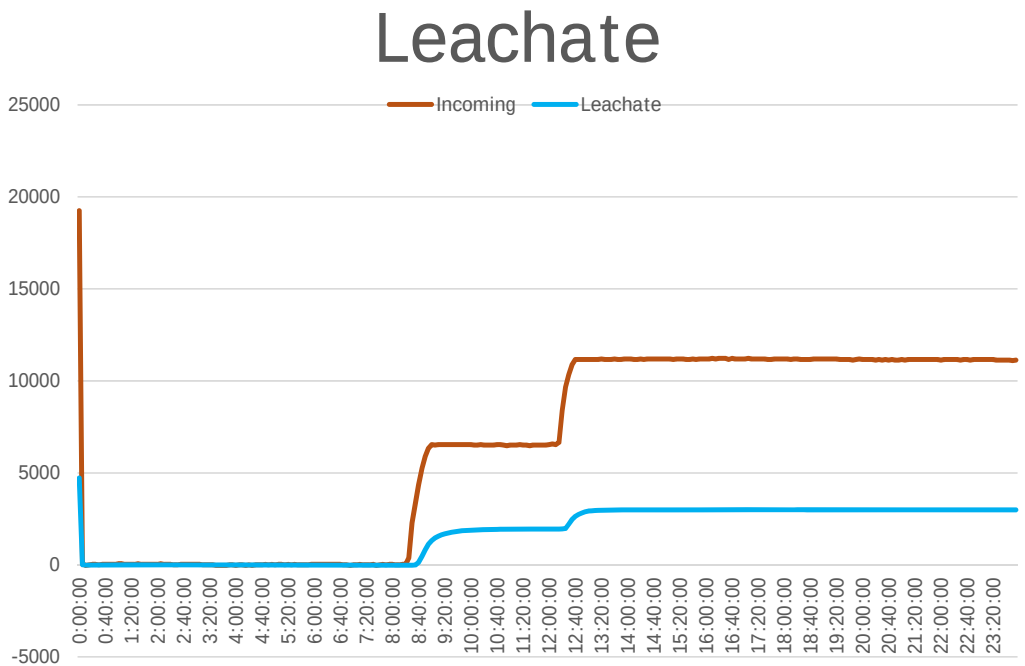
Watering Data

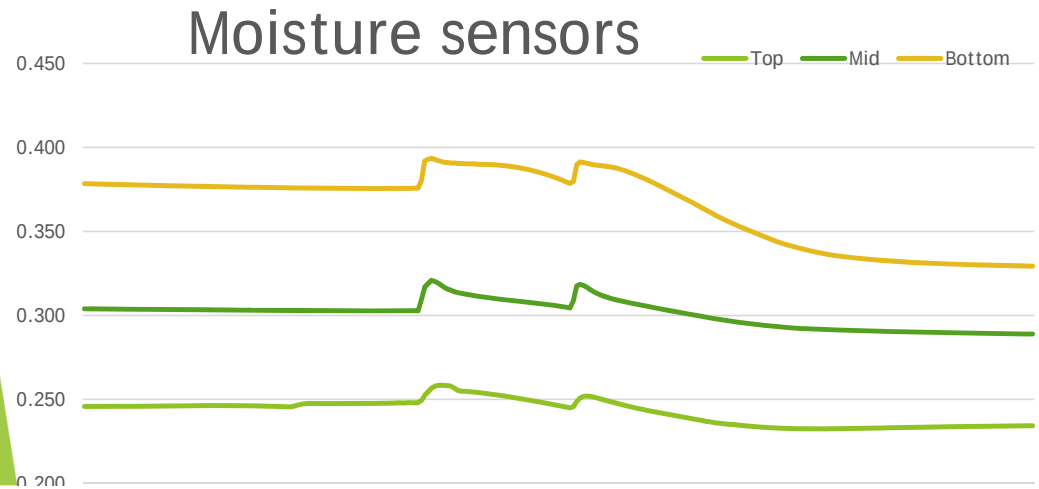

plantlogic

Leachate Collection



Measure volume and EC

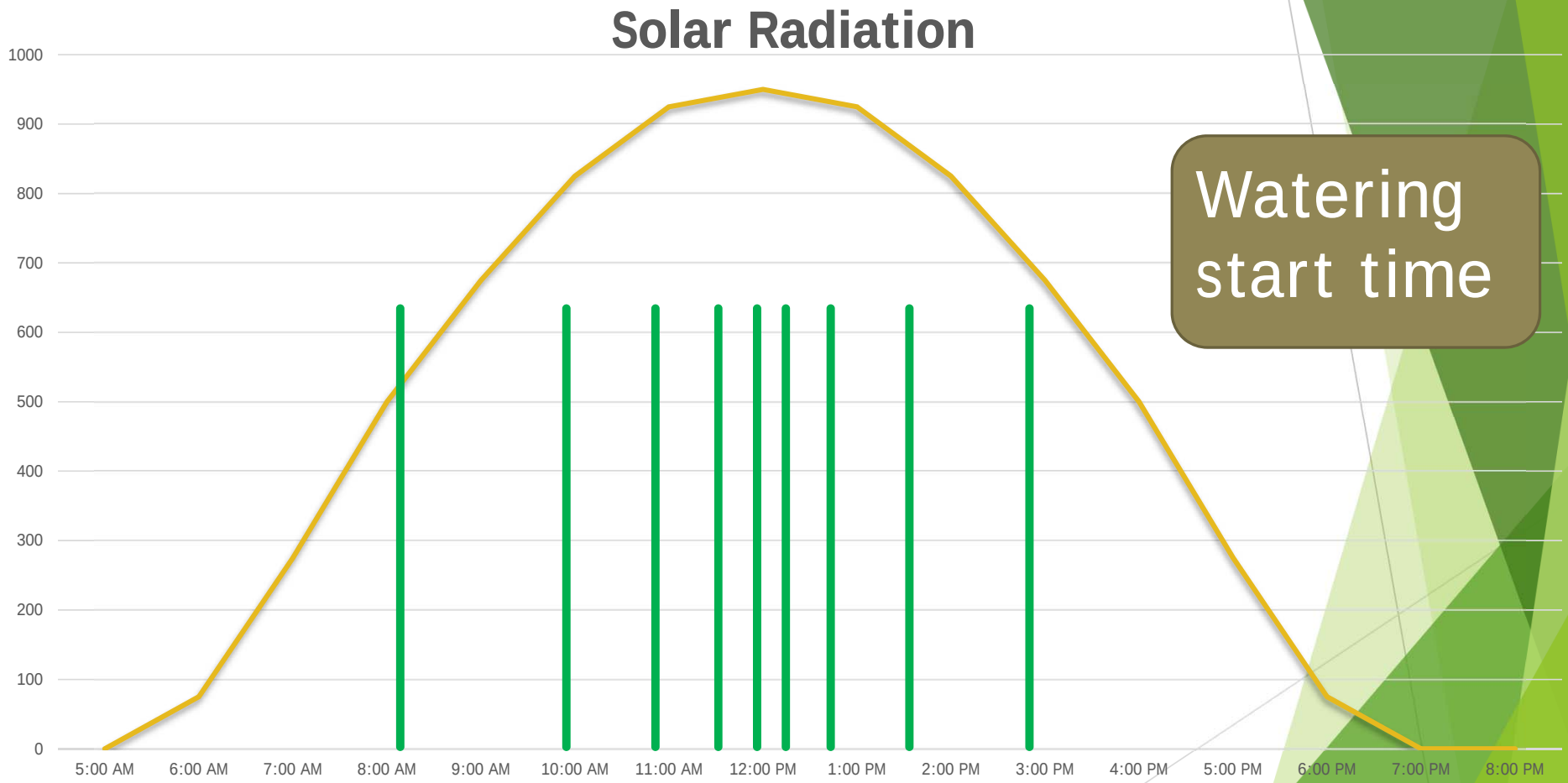




27% Percent Leachate today

1.4 EC incoming average

1.7 EC Leachate Average


Solar Radiation
1000
900
800
700
600
500
400
300
200
100
0
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
Watering start time

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