Australian Government | National Landcare Program

GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY

from the ground up

Sub Surface Drip Irrigation and Soil Acidity

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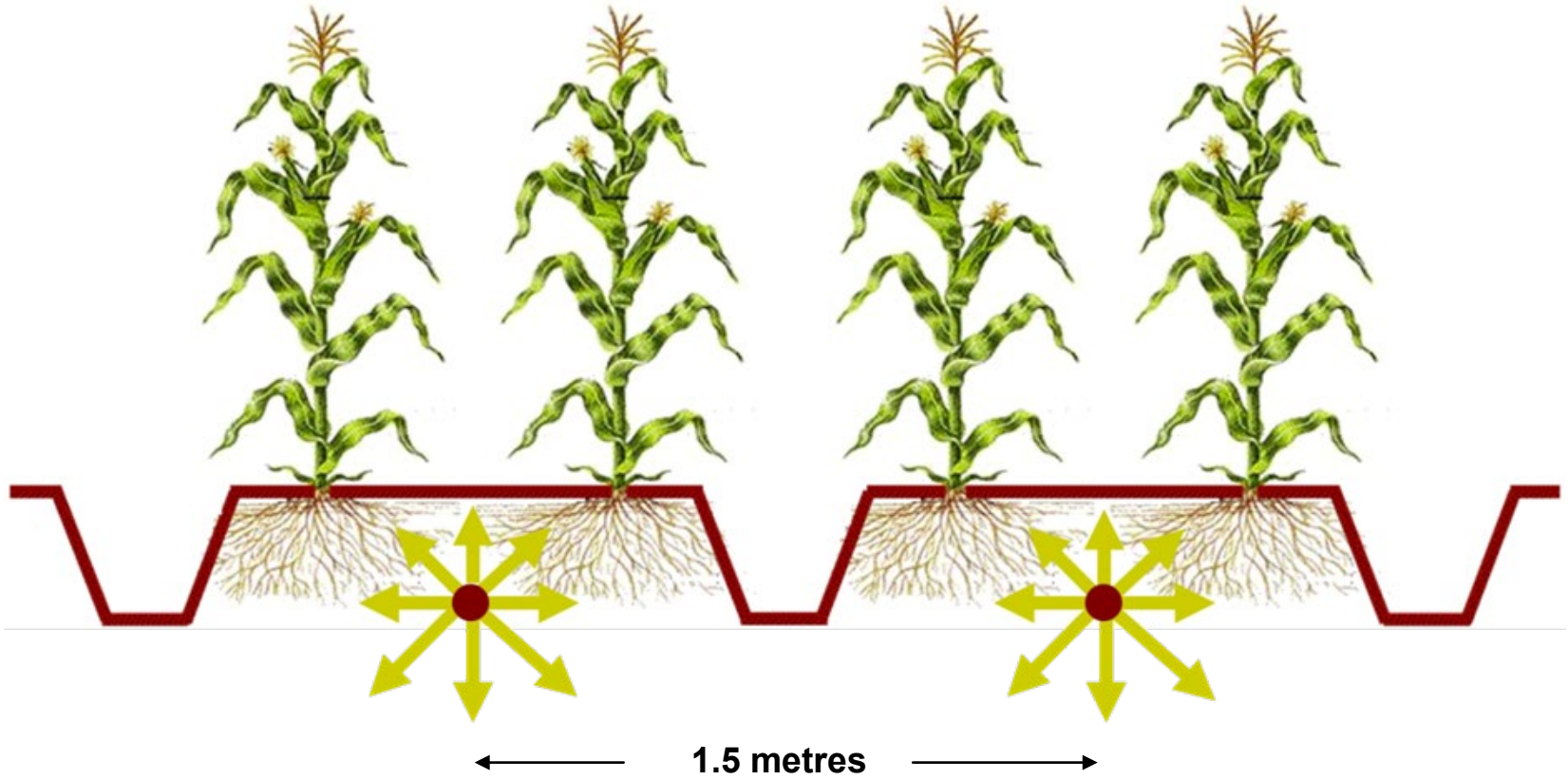
MAA

A soil pit has been dug to show the Netafim sub surface drip irrigation system. The dripline laterals are spaced every 1.5 metres.



Can be on beds or flat

Common System:
Lateral spacing: 1.5 metres
Emitter Spacing: 0.5 meters
Emitter Output: 1 litre per hour

25 – 30 cm depth

Soil-wetting pattern in subsurface drip irrigation influences distribution and deposition of soil particles and solutes

- alters the hydraulic conductivity,
- pH,
- nutrient concentration gradients and
- showed increases in electrical conductivity,
- sodium concentration,
- exchangeable sodium percentage, s
- oil pH and
- a higher proportion of finer soil particles with increasing distance from subsurface emitters.

Initial Trial

- Paddock was chosen at Rochester, red clay loam soil
- Soil test was collected at the emitter, 15 cm and 30 cm away
- **AquaLIME 38 was applied through the drip line**
- Soil test was collected again at the emitter, 15 cm and 30 cm away

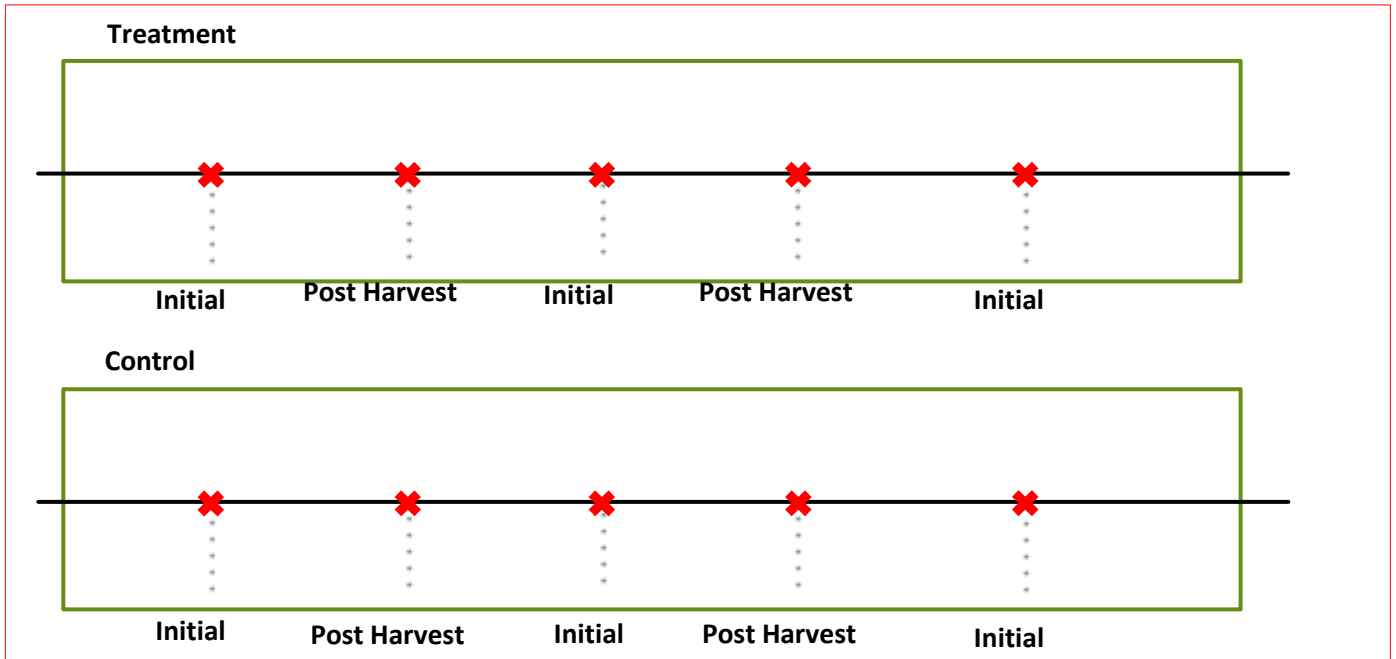
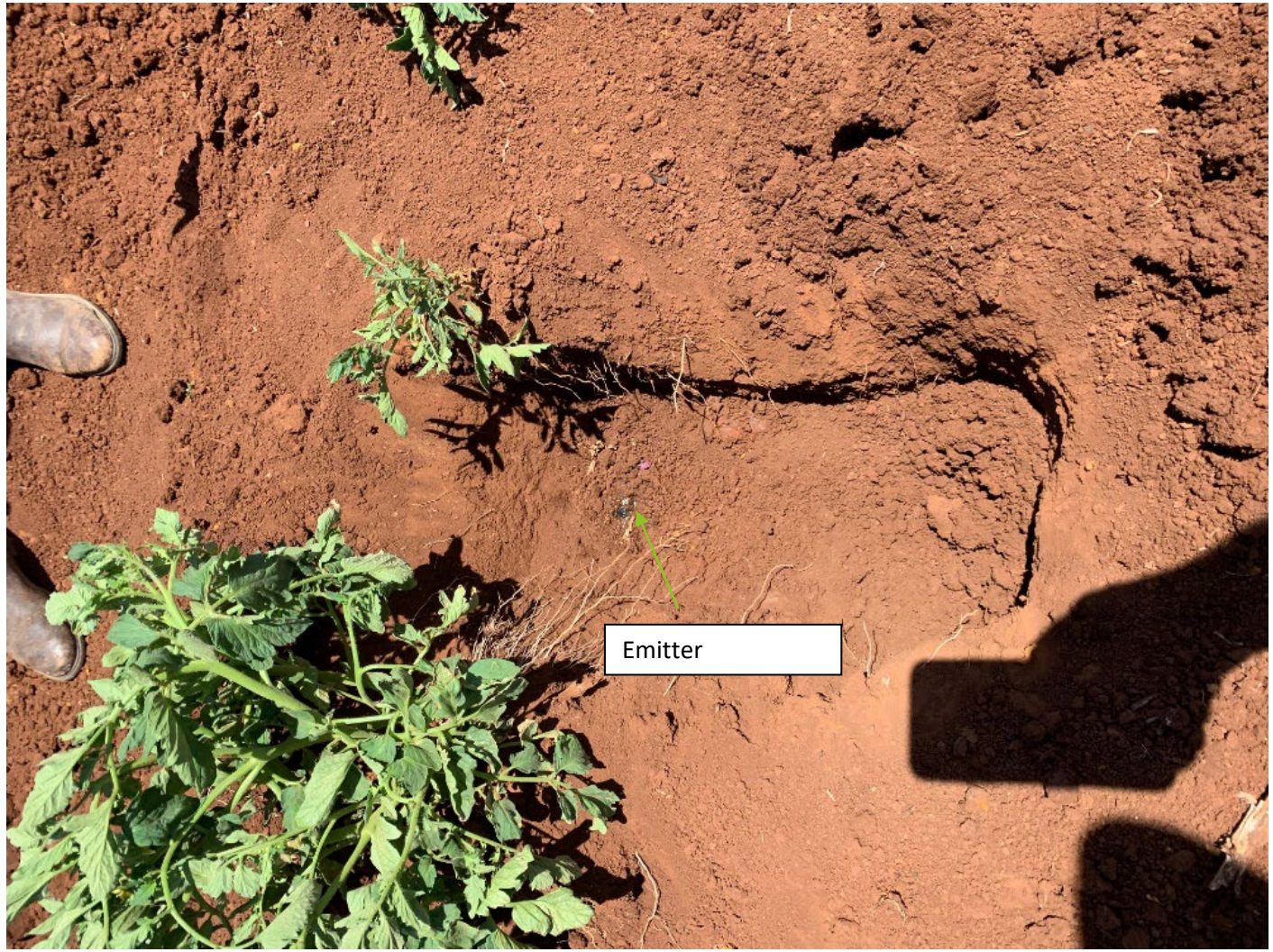
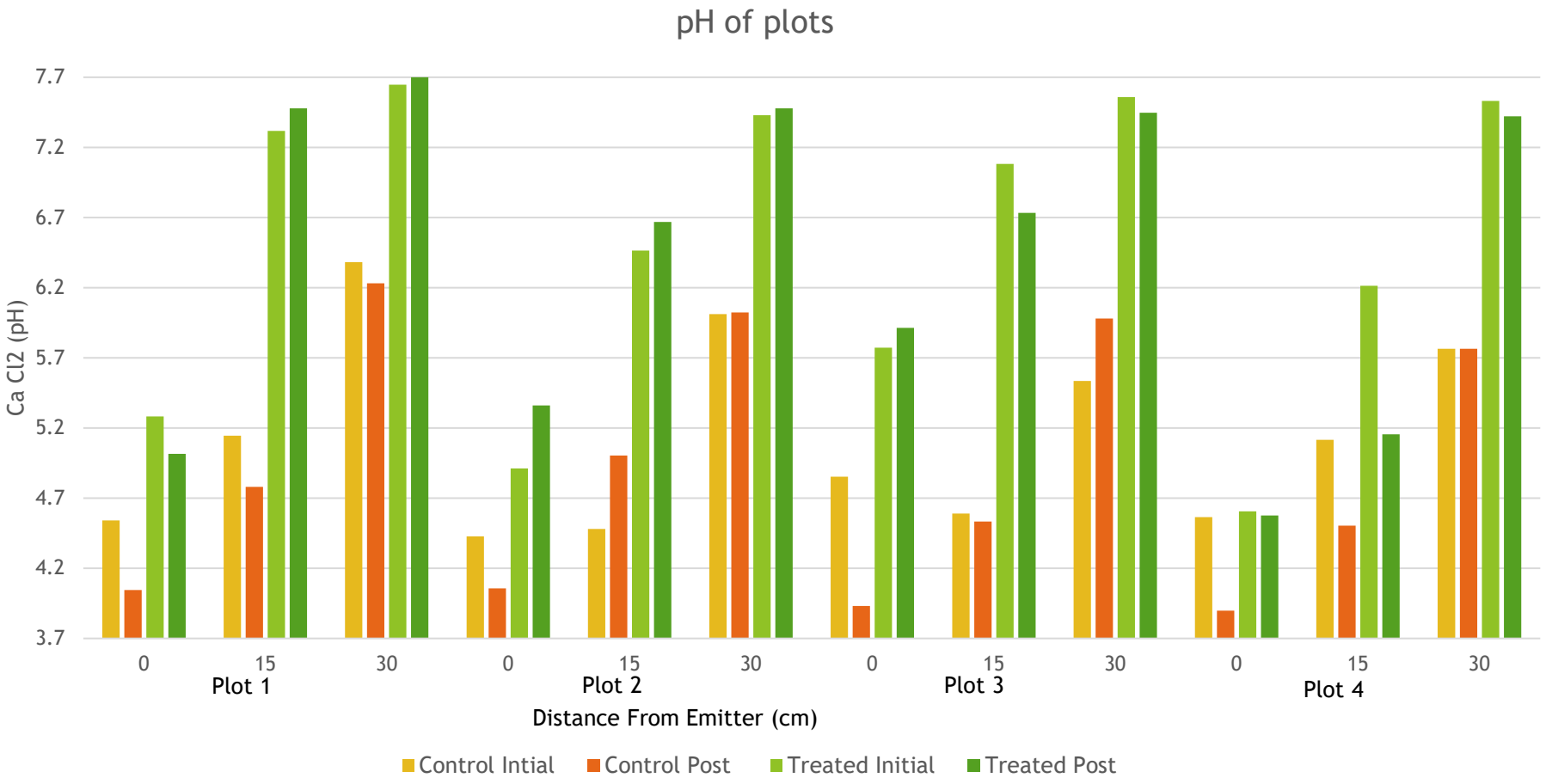


Diagram showing the proposed sampling design.


Emitter


pH of plots
Ca Cl2 (pH)
7.7
7.2
6.7
6.2
5.7
5.2
4.7
4.2
3.7
0
15
30
Plot 1
Plot 2
Plot 3
Plot 4
Distance From Emitter (cm)
Control Intial
Control Post
Treated Initial
Treated Post

2019/2020 Results

- **Further demonstrated that soil pH declines over time near the emitter, and at distances up to 30cm away.**
- **The application of AquaLIME 38 at a rate of** 200L/ha did increase soil pH, although the level of increase was varied.
- To prevent the decline in soil pH and help ensure the longevity of the subsurface drip system an application of lime through the system may be required on an annual basis.

Second Year

- Soil tests conducted at 3 different sites
- pH measured near the emitter, 15cm and 30cm away
- Paddocks selected at Boort, Cooma and Ardmona
  - pH did not decrease near emitter

Where to from here?

- Project was then modified with the focus on soil testing and helping maize growers to manage their soil chemistry
- Field day held with Cassie Schefe inspecting a soil pit in March 2022
  - Focus on plant/soil interactions
  - Overcoming soil acidity
  - Best timing and application of lime

Thanks to:

Growers and SLTEC

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