


(5) Nutrition Monitoring

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Why Monitor ?

- The beginning of deficiency issues can be detected before situation has impact on production
 - Once symptoms are visible the damage has already been done. It may take number of years to correct the problem



What is the best plan/recipe


- The best plan is no definite plan, just a starting fertiliser plan
- Good nutrition involves monitoring and adjusting the starting fertiliser plan to seasonal needs
 - Leaf and soil analysis
 - Crop yield and fruit quality
 - Tree vigour and leaf symptoms
 - Soil solution analysis



Leaf sampling



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Important leaf sampling points

- This is only one tool, not the only tool
- Full benefit is not reached until a numbers of years of analysis is collected and trends are observed

Soil Analysis




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Soil Analysis

- Soil analysis show you what nutrients are stored in the soil
 - Long term & short term availability
- Should be conducted at least once every 3- 5 years to detect changes
 - However pH annually in concerning situations
- Best to take two levels
 - Main root zone 10cm-20cm (scrape off top 10cm)
 - Below root zone 50cm (once every 5-10 yrs)
- Soil test results not powerful on its own, but very powerful to help explain other nutrient observations



Soil Analysis

- Soil pH conducted every year and if detect problems, three time per year
 - Main root zone 10cm-20cm (scrape off top 10cm)
 - Can use “home”kit
- Soil analysis interpretation and theory of soil science presented in NSW DPI Soil Seminar



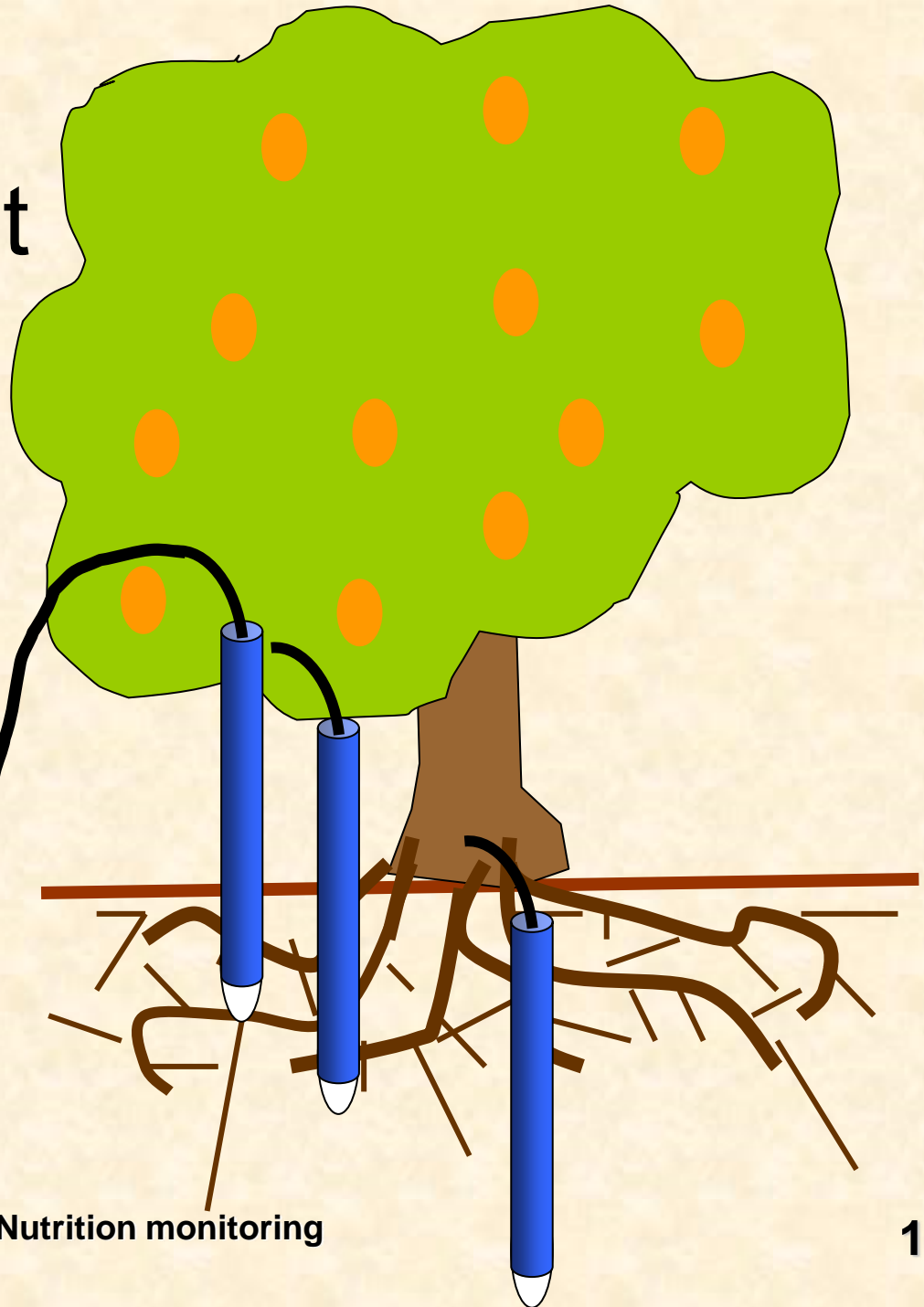
Soil solution analysis



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Tube Placement

Want to monitor
Deep leaching
-Nitrate only
- (test strip)



Full stop wetting front detector

- Able to take soil solution samples but also signal when water hits red funnel
- Excellent for sprinkler or conventional drip irrigation methods
- www.fullstop.com.au
- Where: MEA Engineering
Ph 08 83329044
(www.me.com.au)
 - Cost : \$165 for a pair



Soil solution analysis

- Excellent for measuring Nitrate salinity and chloride
 - Careful interpretation of P, K, Ca, Mg
 - not straightforward
 - very difficult in clay soils
 - discussed in soil workshop





Yield estimation



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Yield estimation

- Measure crop load in mid December to get a “indication” of crop levels
- Use 50cm counting frame





Yield estimation


- Use a excel spreadsheet to estimate yield (T/ha) based on frame count result
- Realistically able to estimate within +/- 5 T
 - **Need few years practice to fine tune**
- How to do frame count & excel spreadsheet presentation (local facilitator) and fact-sheet available
- Adjust nutrition program for late July to Feb for expected yield



Conclusion



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Conclusion

- If cost of production is about \$3000/ha, how much do you spend on monitoring?
- You have the tools
 - Leaf and soil analysis
 - Historical crop yield and fruit quality
 - Tree vigour and leaf symptoms
 - Yield estimation
 - Soil solution analysis



Conclusion

- None of these tools should be used in isolation to make major changes
- **DO NOT RELY JUST ON ONE TOOL!**
- You only need to be organised and committed