

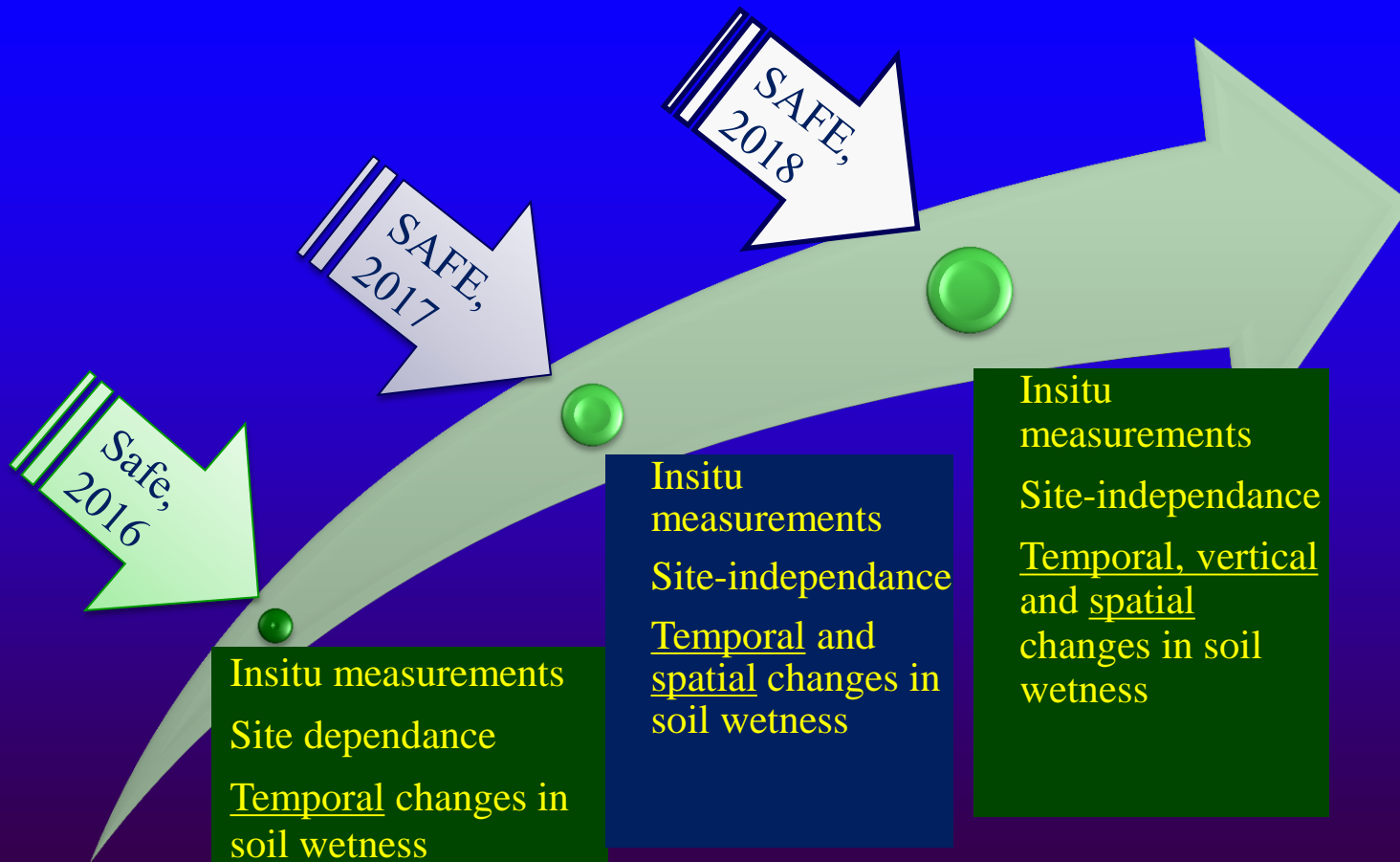


**Redistribution of Rainfall Water in The Root  
Zones of Mature Oil Palm Growing on Different  
Slope Steepness**

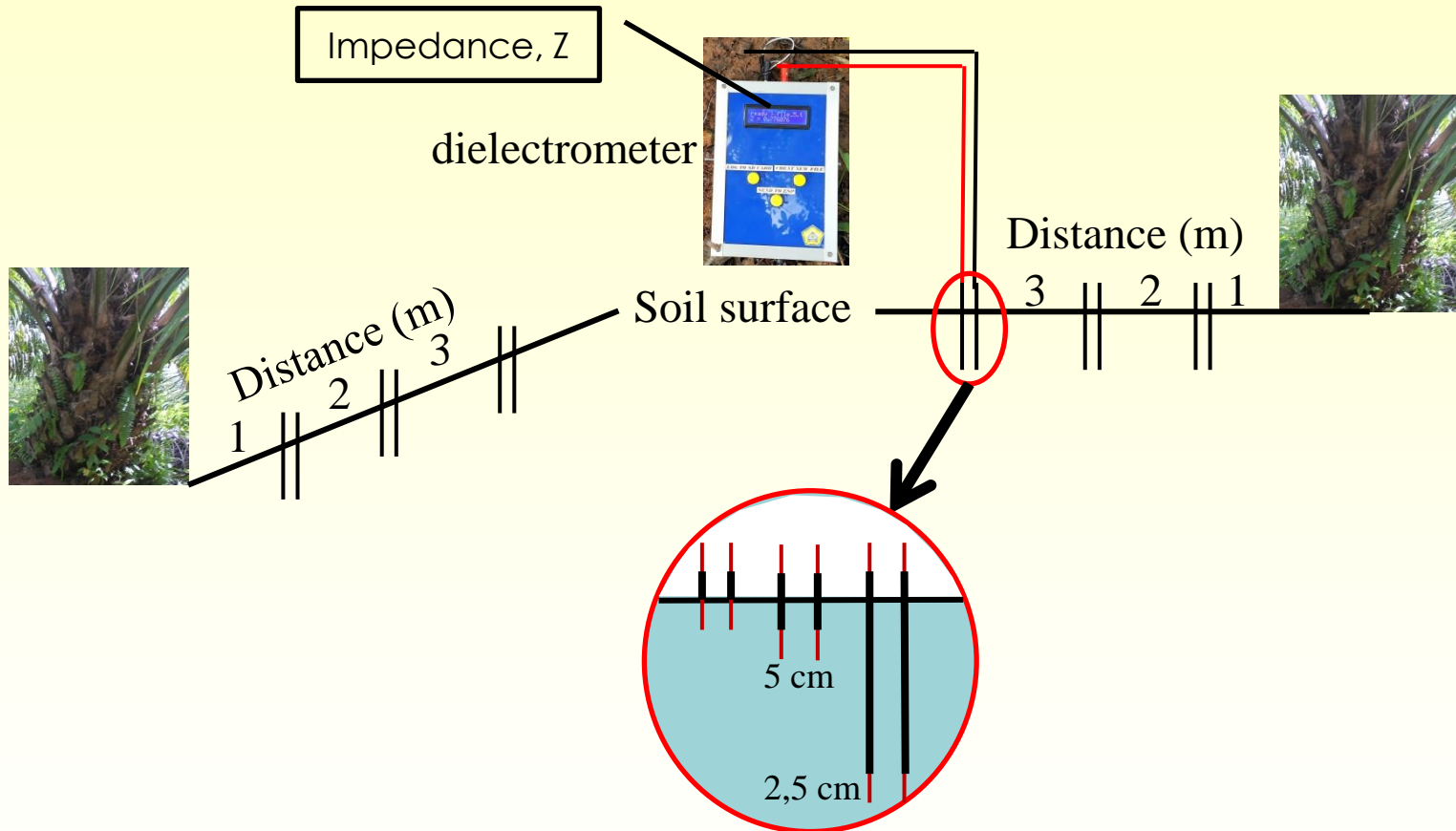
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*Presented in SAFE Conference, Manila, October 19-20, 2018*

# Previous Studies on Soil Wetness



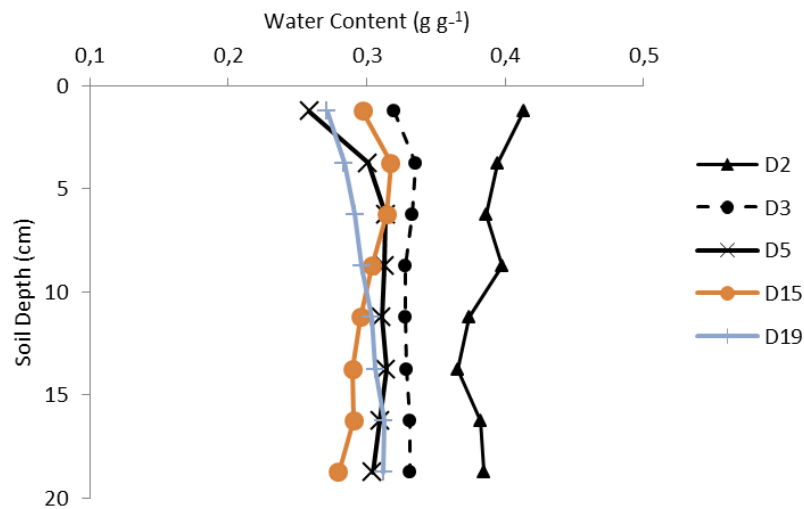
# Methods



# Results: Flat land

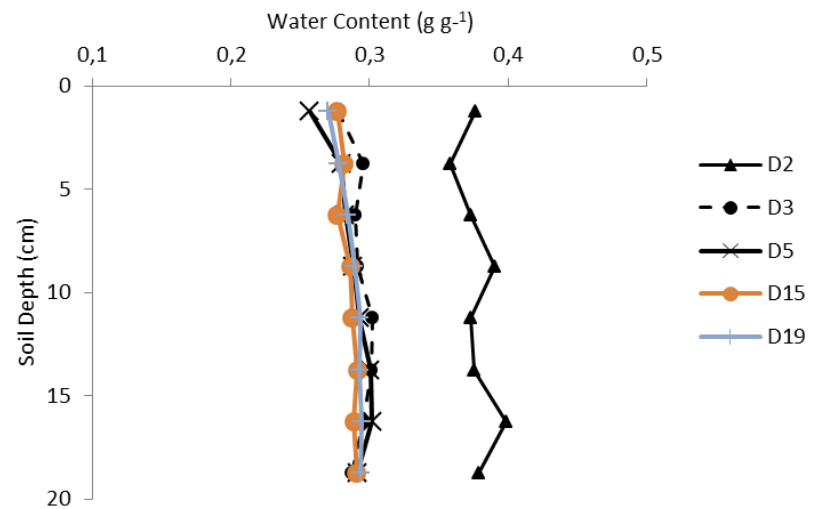
1 m:

Profile dried out slowly following discharging



2 m:

Profile dried quickly after 24 hours since heavy rain



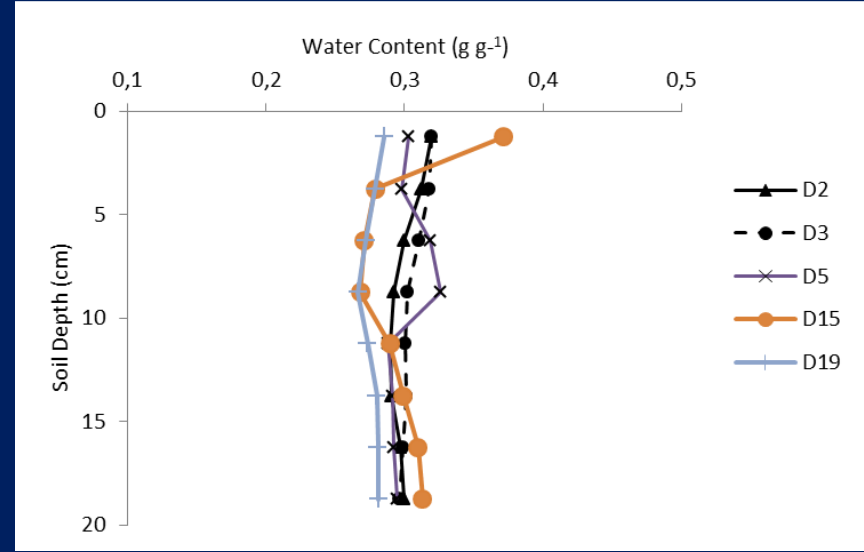
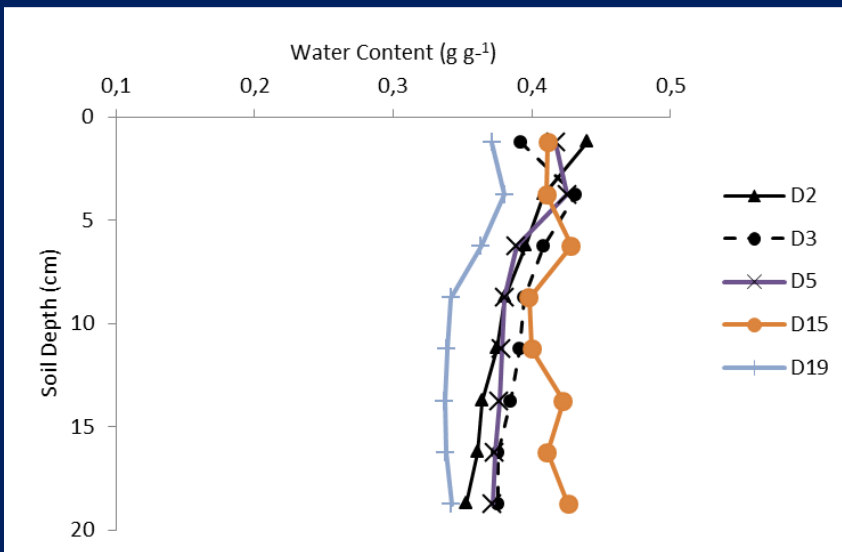
# Results: Steep land

1 m:

Soil profile still wet due to water accumulation near the tree

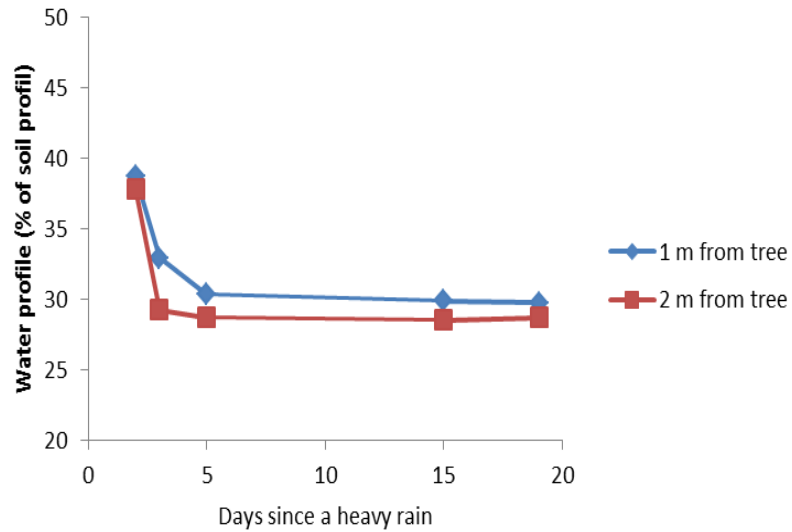
2 m:

Soil profile already dried within 10 hours since heavy rain

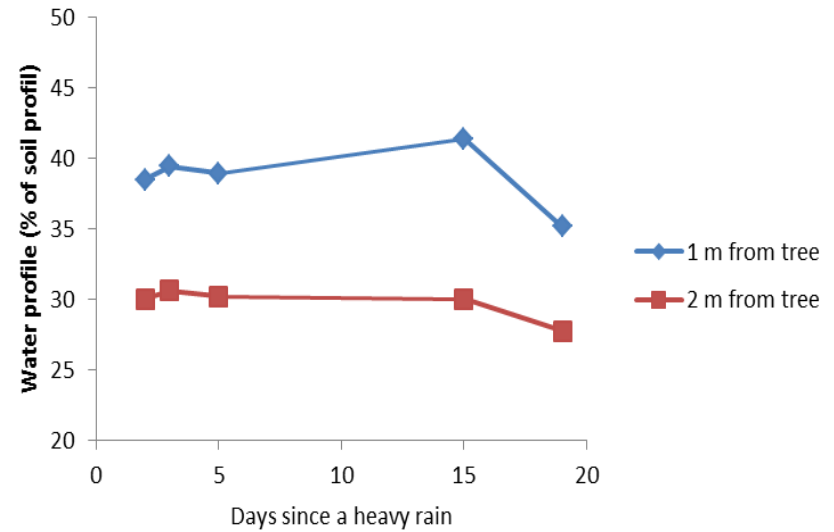


# Results: Water Profile

## Flat land



## Steep lan



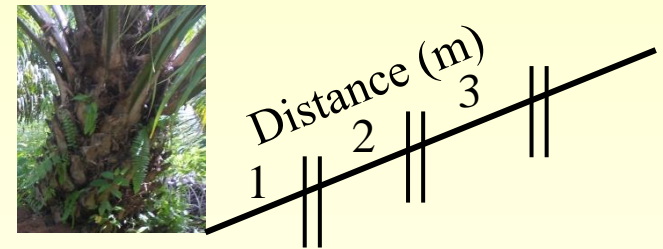
# Conclusions



Position 2 dan 3 dry out in **24 hours** since heavy rain

Wetness 1 – 2 = 2%

Water accumulation in Pos 1 only occurred less than **24 hours** after heavy rain



Position 2 and 3 dry out in **10 hours** since heavy rain

Wetness 1 – 2 = 10%

Water accumulation in Pos 1 occurred within **15 days** after heavy rain

# Conclusions

1. In the presence of root systems ( $\geq 2$  m from a tree), a significant decrease in average soil water at 0-20 cm depths occurred within **24 hours for flat** but only **10 hours for steep** land since a heavy rain.
2. Water profiles, i.e. equivalent depth of water to depth of soil, were **lower for 2 m** than for 1 m distance from trees indicating more water absorption by roots.
3. In the steep land, water was **accumulated** within 1 m in the upper slope from tree.



