

**Evaluation of the efficacy of a new insecticide paint for malaria control. Part II: Field Efficacy against *Anopheles gambiae* ss and *Culex quinquefasciatus* over 9 months in Benin (West Africa)**

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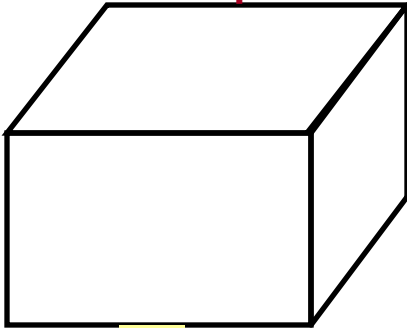
**<sup>3</sup> CREC, Cotonou (Benin)**

# Ladii Experimental Station



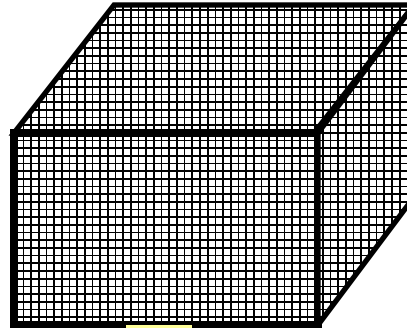
# Configuration of 6 experimental huts Ladji Station

Control 1  
NO paint



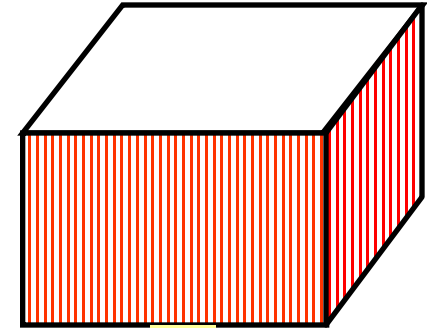
1

Control 2  
paint with NO insecticide



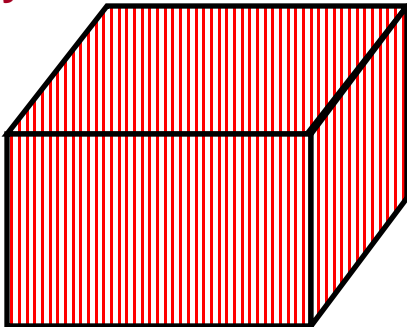
2

Insecticide Paint  
1 layer on walls 1 kg/m<sup>2</sup>



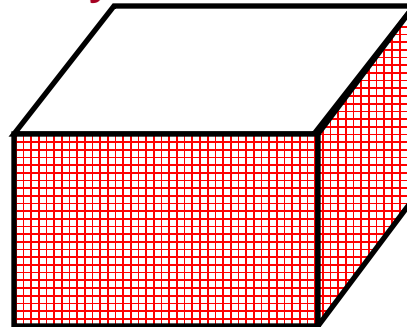
3

Insecticide Paint  
1 layer on walls & roof 1 kg/m<sup>2</sup>



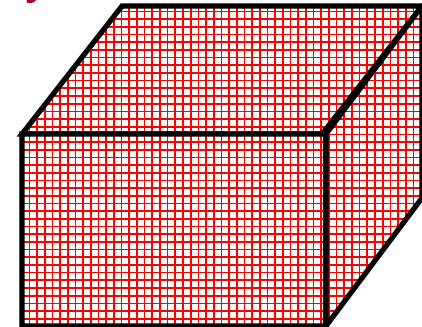
4

Insecticide Paint  
2 layers on walls 1 kg/m<sup>2</sup>



5

Insecticide Paint  
2 layers on walls & roof 1 kg/m<sup>2</sup>



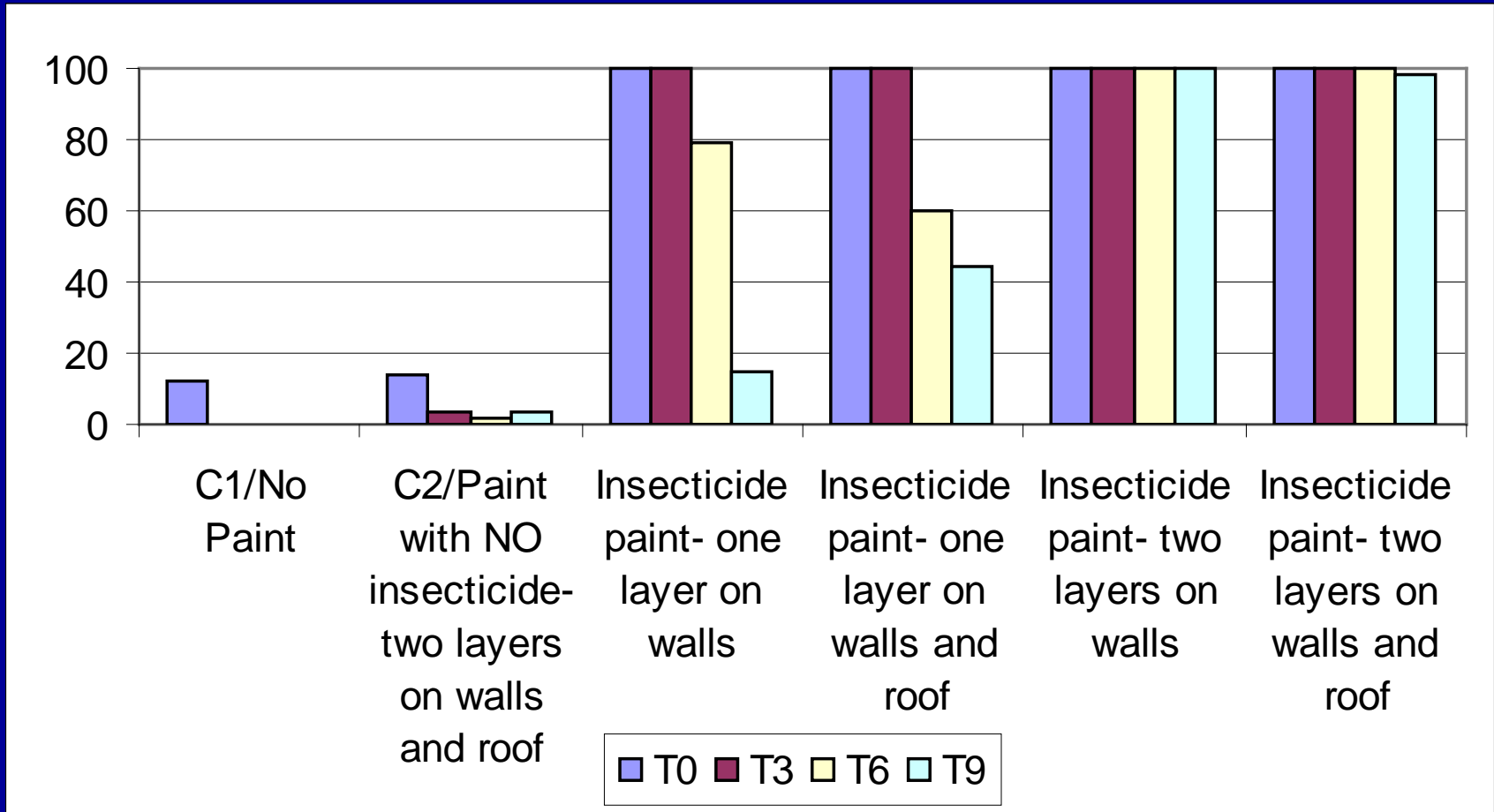
6

# PHASE II at CREC - Methods

- Treatment
- 30' Bioassays against susceptible *Cx. quinquefasciatus* & *An. gambiae*
  - Immediate Mortality (60 minutes)
  - Delayed Mortality (at 24 hours)
- Early Morning Collections (local)
- Hut-release Experiments (susceptible *Anopheles*)
- Distance Tests (susceptible *Culex*)
  - Delayed Mortality (at 24 hours)

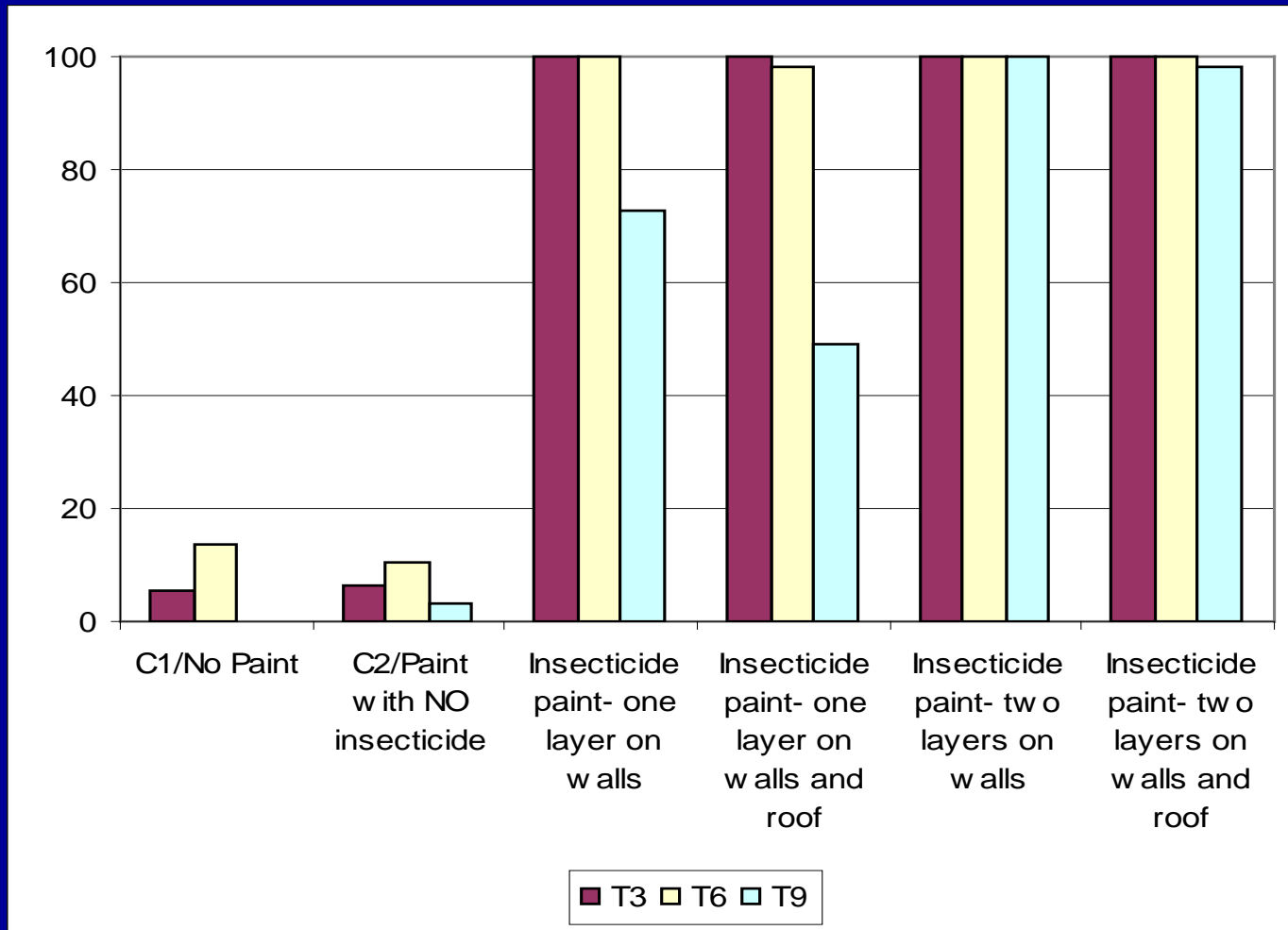


# 30' Bioassays - Delayed mortality against susceptible *An. gambiae* at T0, T3, T6 & T9



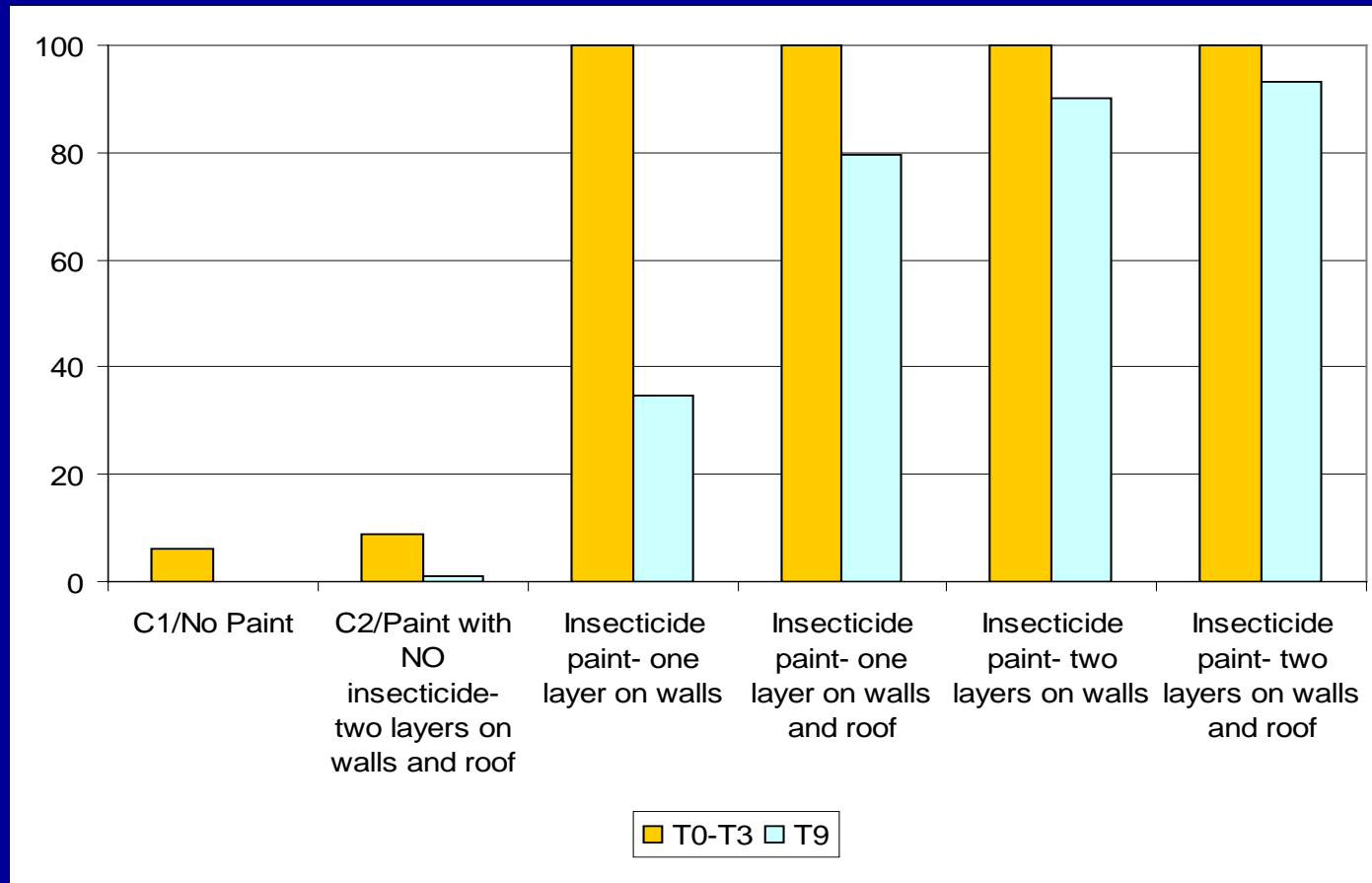
All huts yielded mortalities significantly different from control ( $p < 10^{-3}$ ) except hut treated with only 1 layer on walls at T9

# 30' Bioassays - Delayed mortality against susceptible *Cx. quinquefasciatus* at T3, T6 & T9



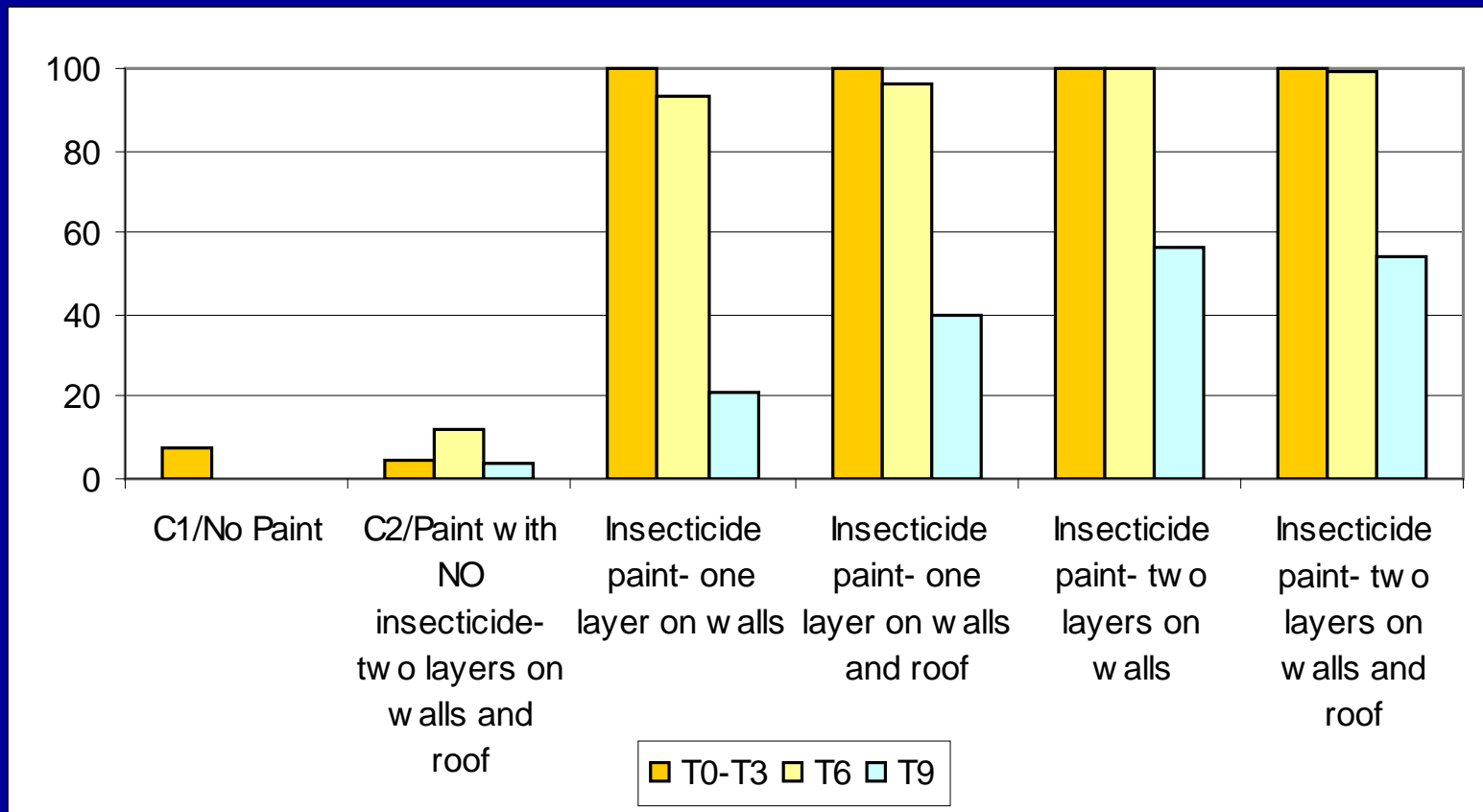
All huts yielded mortalities significantly different from control ( $p < 10^{-3}$ )

# Early Morning Collections – Overall Mortality against *Anopheles* – *An. gambiae* wild females collected at LADJI at T0-T3 & T9



At T9, overall mortality superior to control ( $p < 10^{-3}$ ) except hut treated with only 1 layer on walls

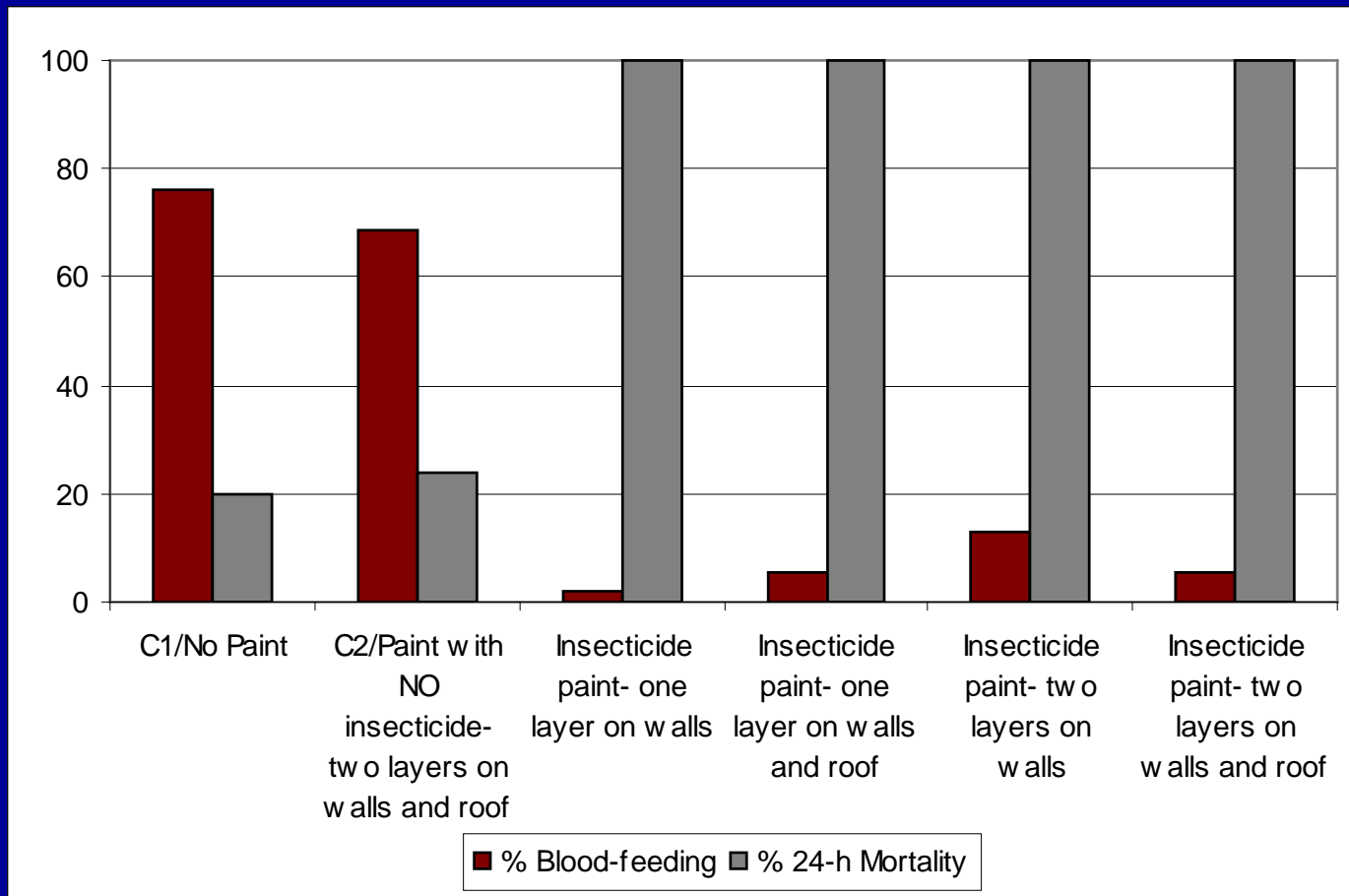
# Early Morning Collections – Overall Mortality against *Culex* - *Cx. quinquefasciatus* wild females collected at LADJI at T0-T3, T6 & T9



At T9 overall mortality in all treated huts superior to control ( $p < 10^{-3}$ )




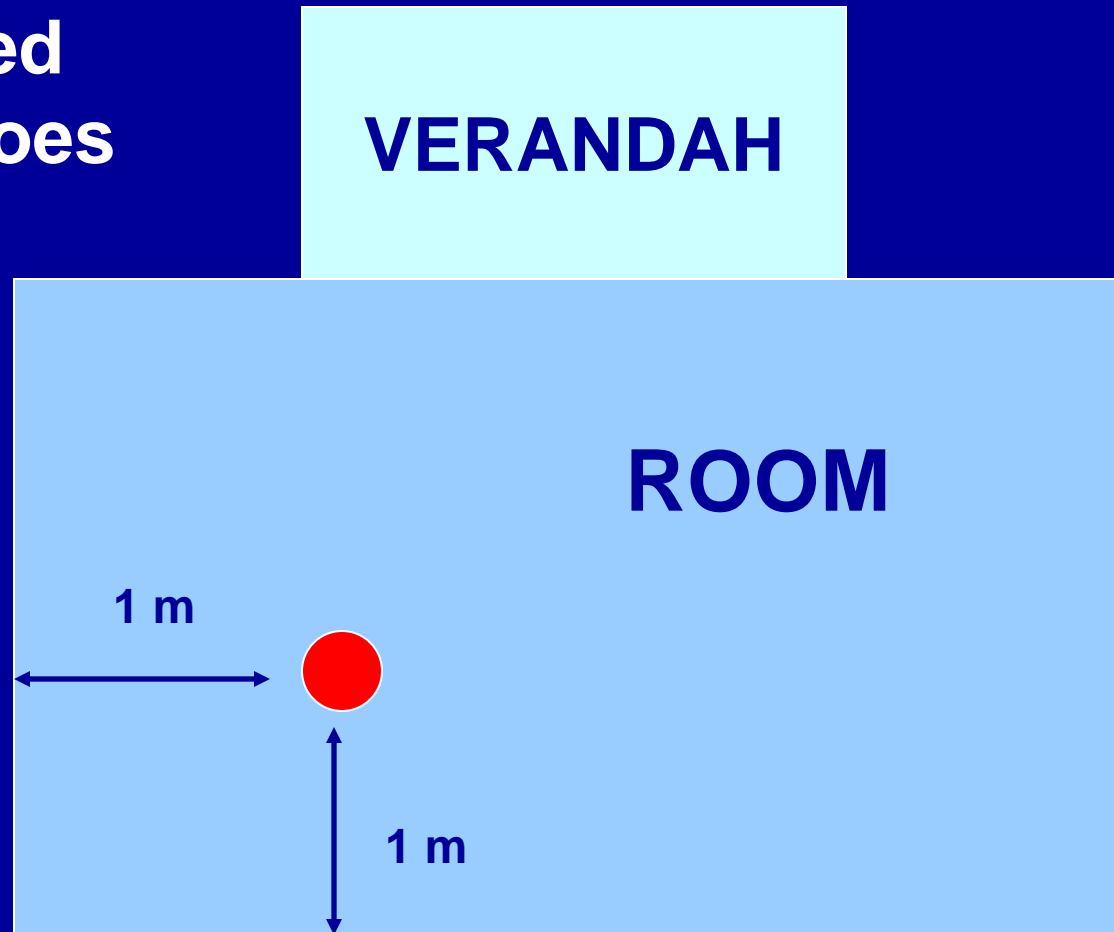
# Blood-feeding and delayed mortality of hut-released susceptible *An. gambiae* (averages from two repeats; n > 30)



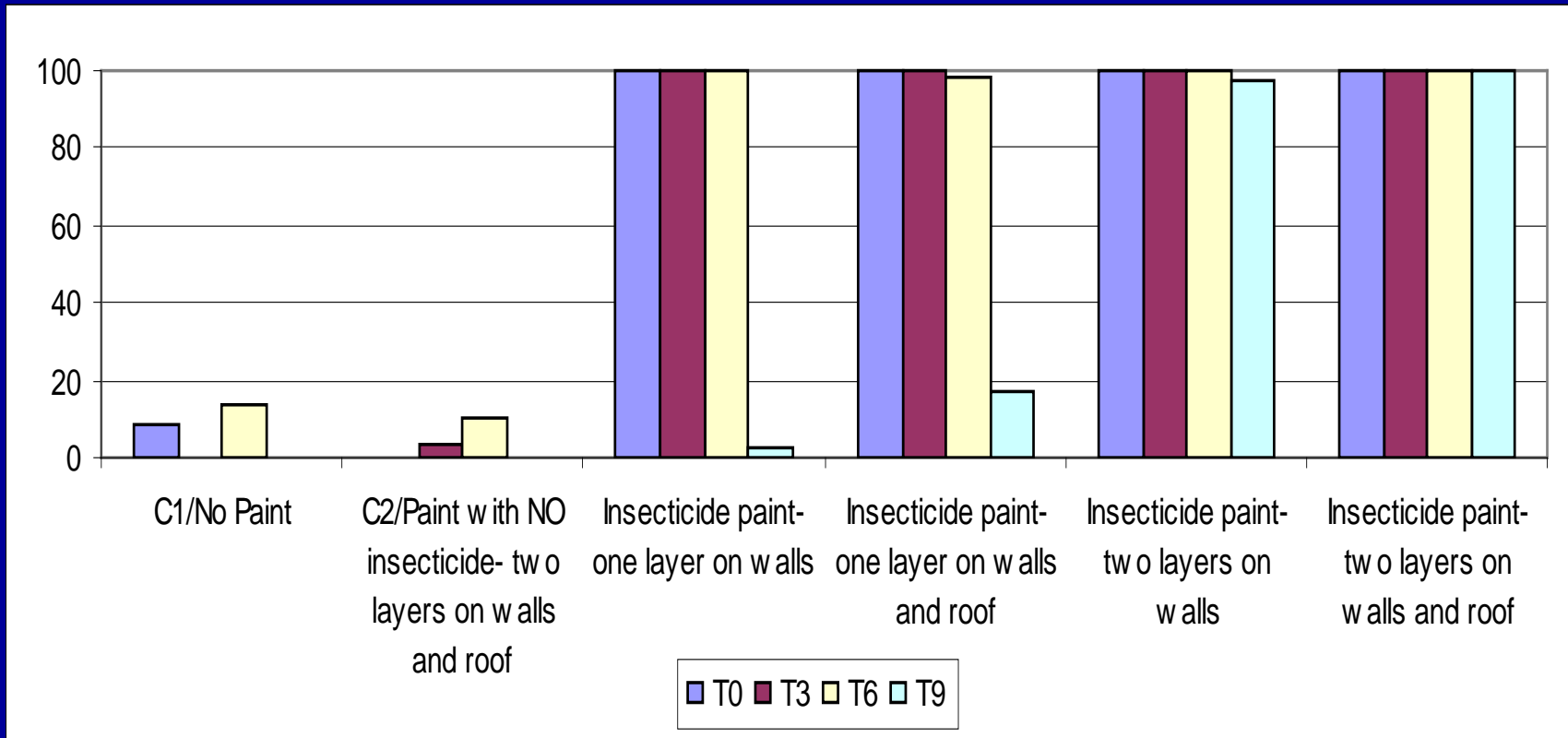
Quick killing before mosquitoes can bite ( $p < 10^{-3}$ )

# Distance tests

 = encaged mosquitoes



# Distance Tests against susceptible *Cx. quinquefasciatus*: Delayed mortality following an overnight exposition at distances of 100cm from 2 walls at T0, T3, T6 & T9



Up to T6, distance effect observed in all treated huts ( $p < 10^{-6}$ )

By T9, distance effect in all huts ( $p < 10^{-3}$ ) except in hut with only 1 layer on walls

# CONCLUSIONS



- **Quick killing**
- **Long-term efficacy**
- **Possible mass effect**

**Next... PHASE III - still reasons to believe the paint could be effective in malaria and pest control**