

# Survival and Elimination of Pathogenic, Heat Resistant and other relevant Microorganisms treated with UV

2008

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**FMRG**



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# Introduction



- To further prove the benefit of using UV technology, research on the survival and elimination of pathogenic, heat resistant and other relevant microorganisms treated with UV (Sure Pure system) need to be performed.
- Data needs to be generated to determine the minimum UV dosage (J/l) for the inactivation of heat resistant microorganism, pathogenic microorganisms and other organisms of industrial importance.

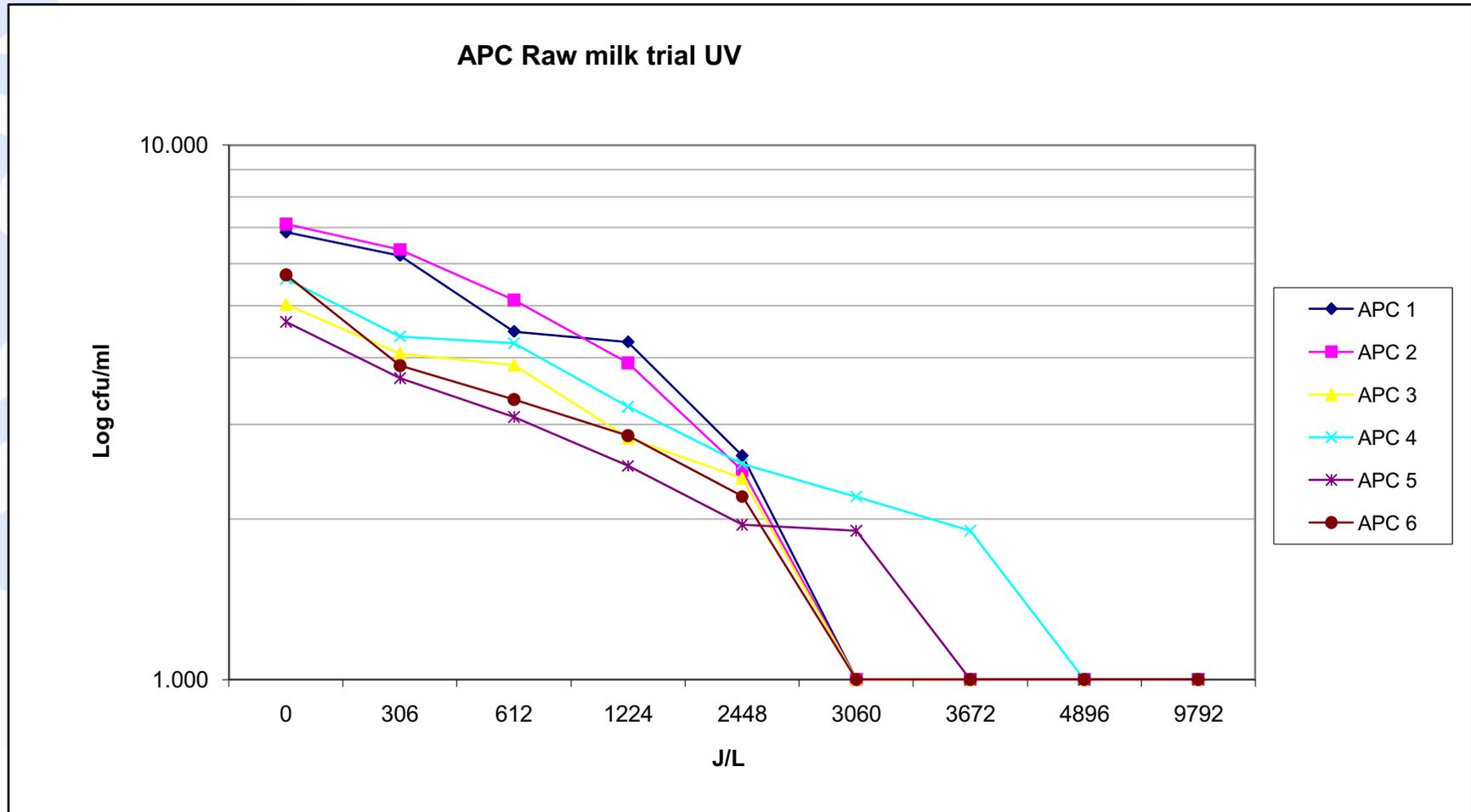


# Research Project 2008

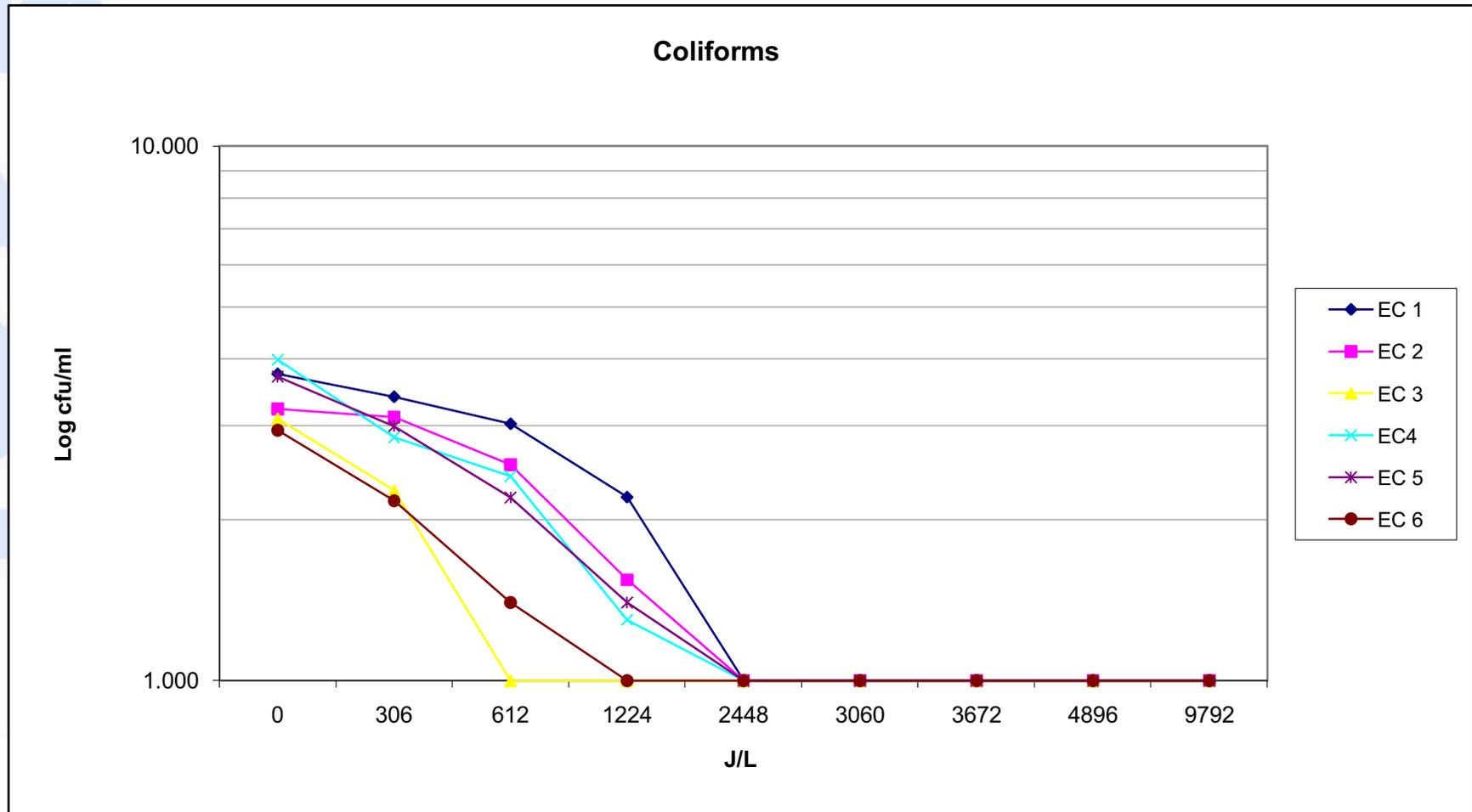
- Isolation and identification of the microorganisms that survive the heat-treatments in milk and juice.
- Study the effect of UV (Sure Pure system) on the selected pathogenic and heat resistant microbes, the effect on vegetative cells, endospores, and pre-heat treated cells.
- Treatment of other relevant microbes with different UV dosage in order to determine the killing effect of UV
- Study the recovery, if any, of the organisms treated with UV.



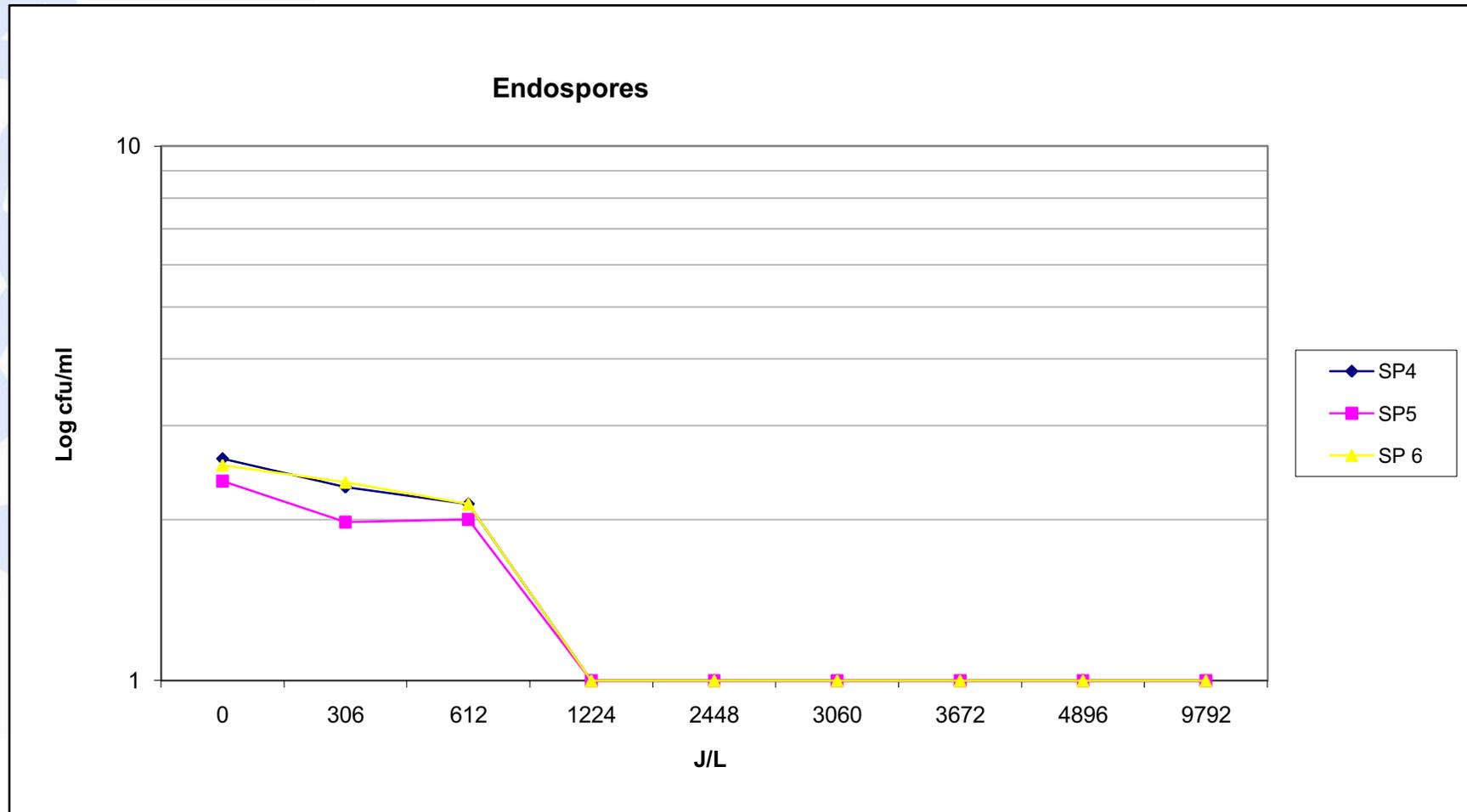
# Raw milk trials – J/L



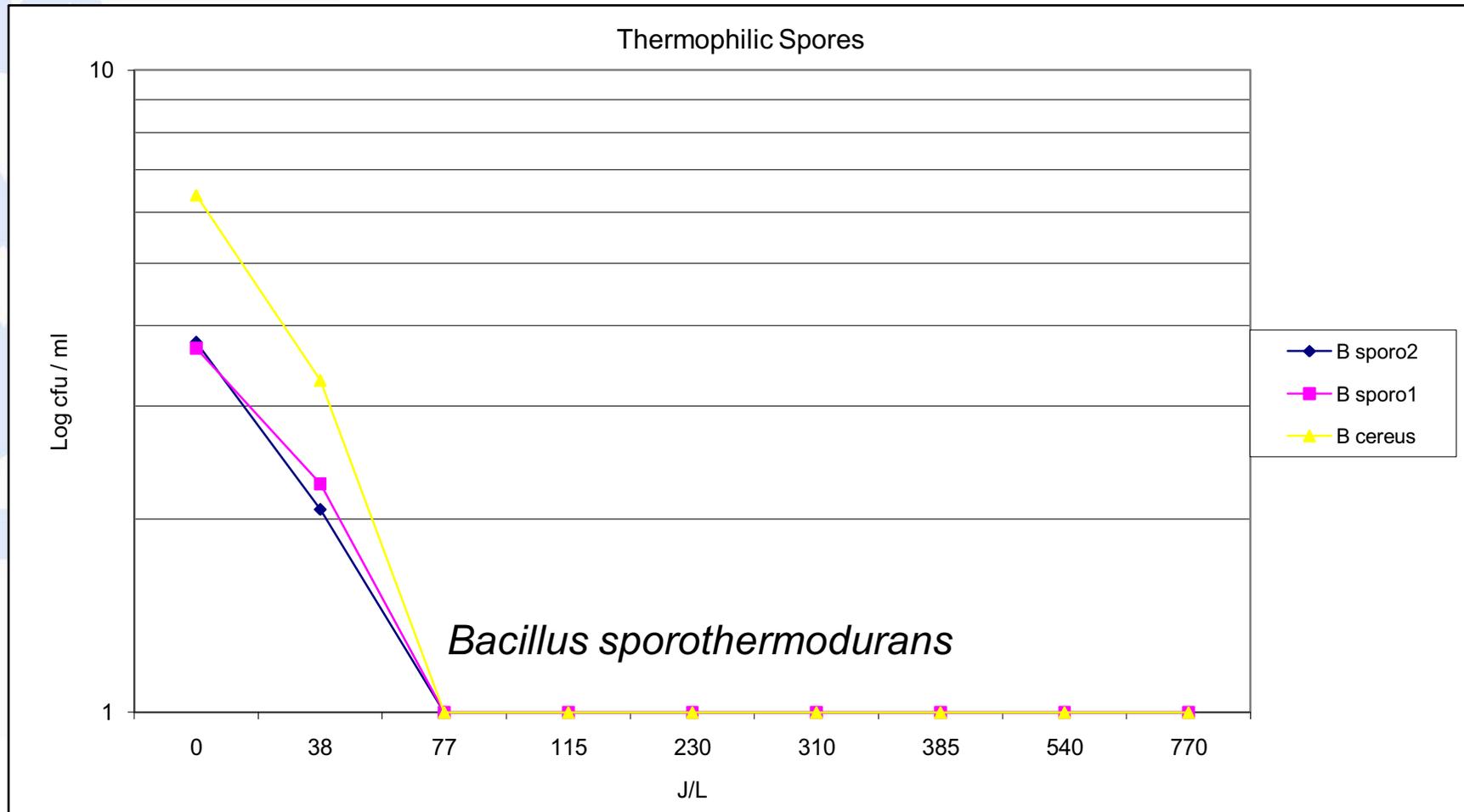
# Coliforms Raw milk



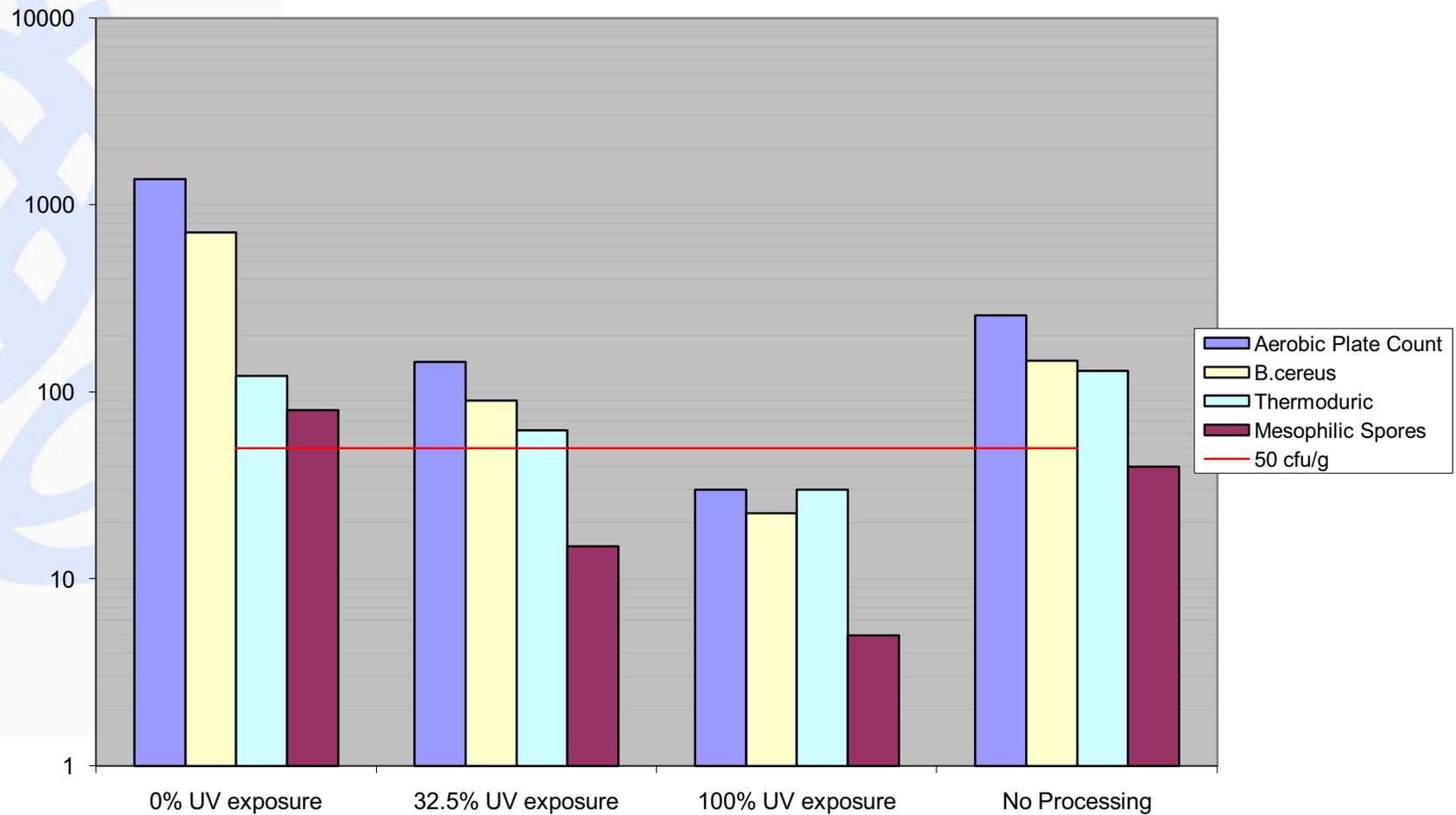
# Endospores - Raw milk



# Thermophilic spores (Water)

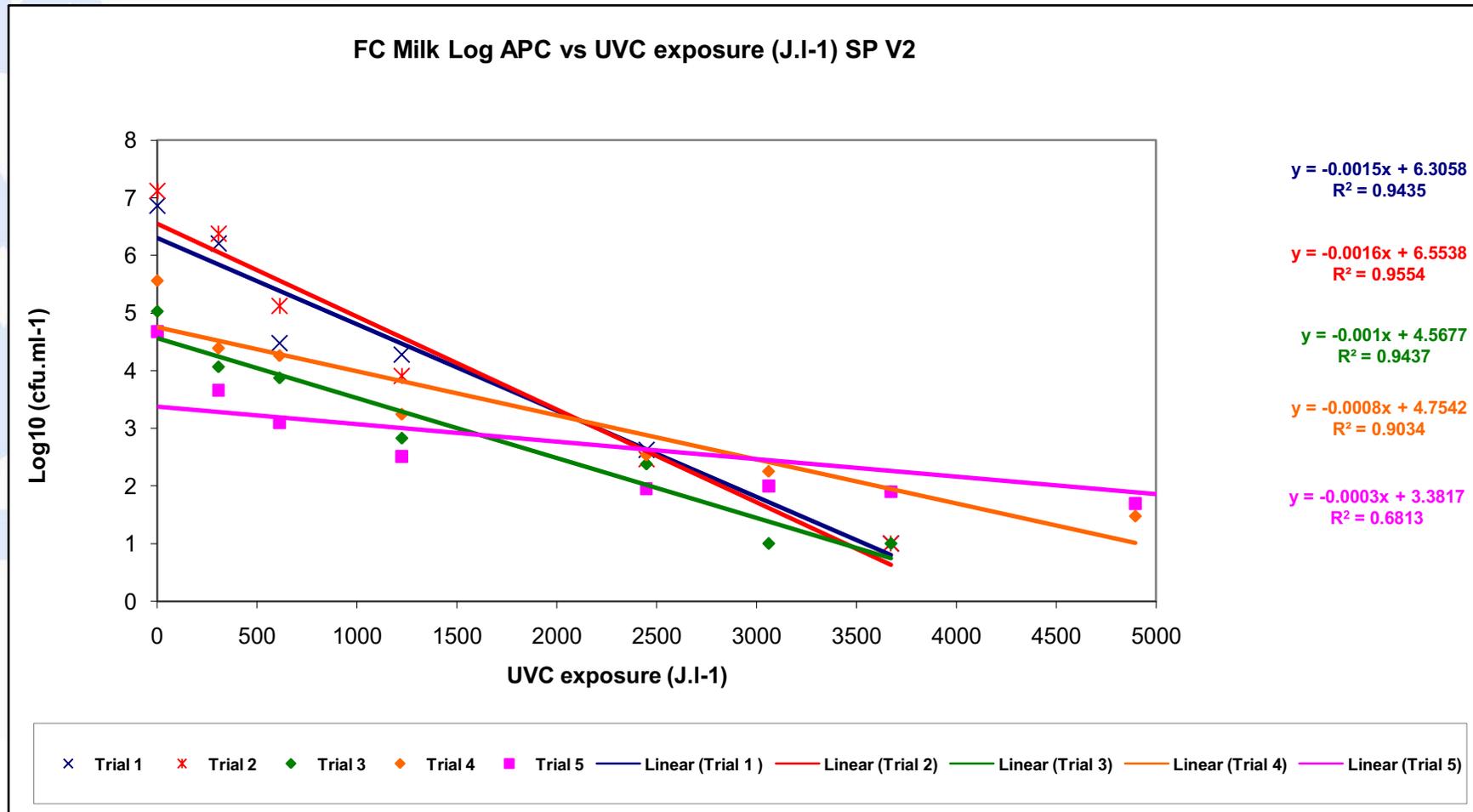


# UV exposure and Spores Milk - Fonterra

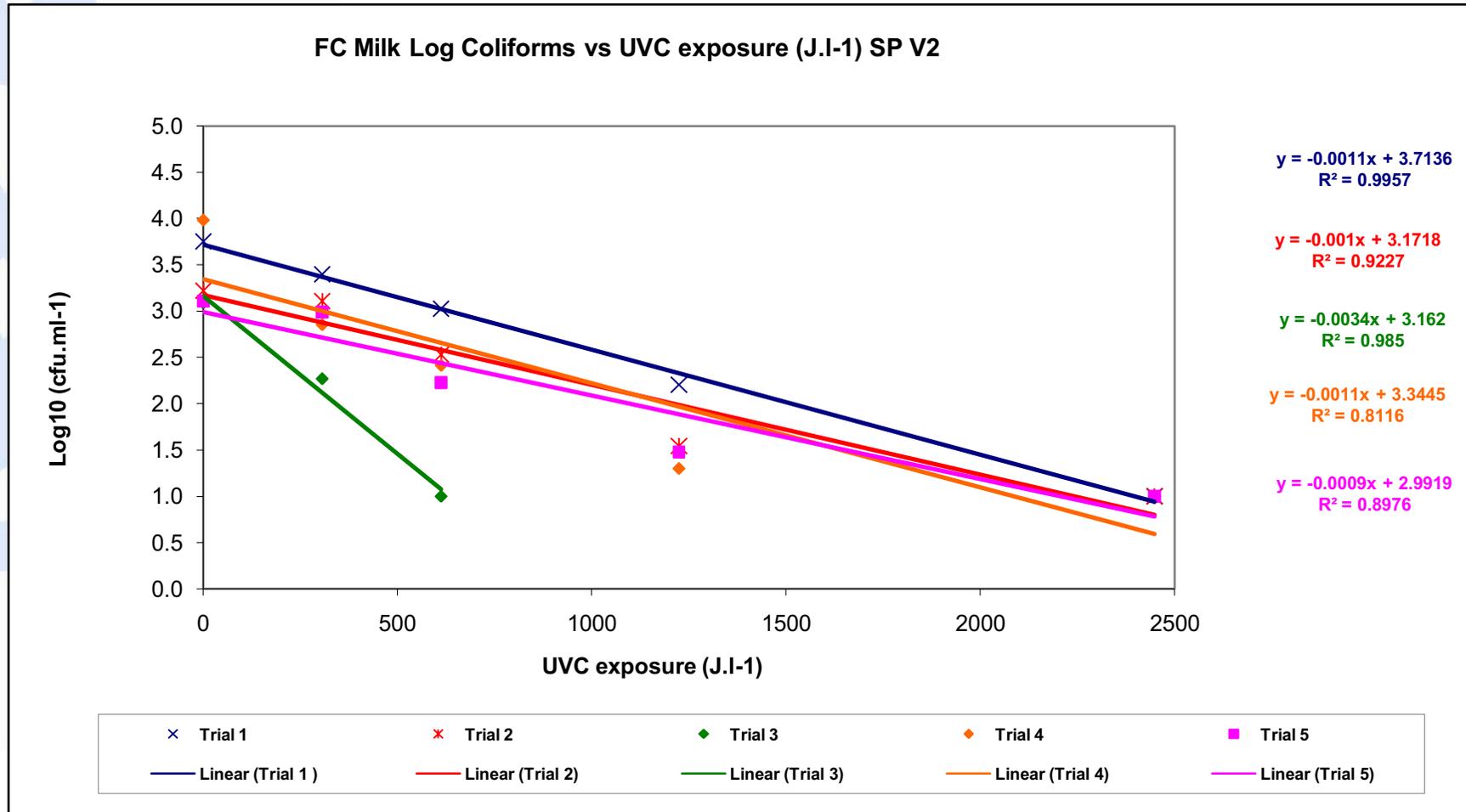


Fonterra, NZ

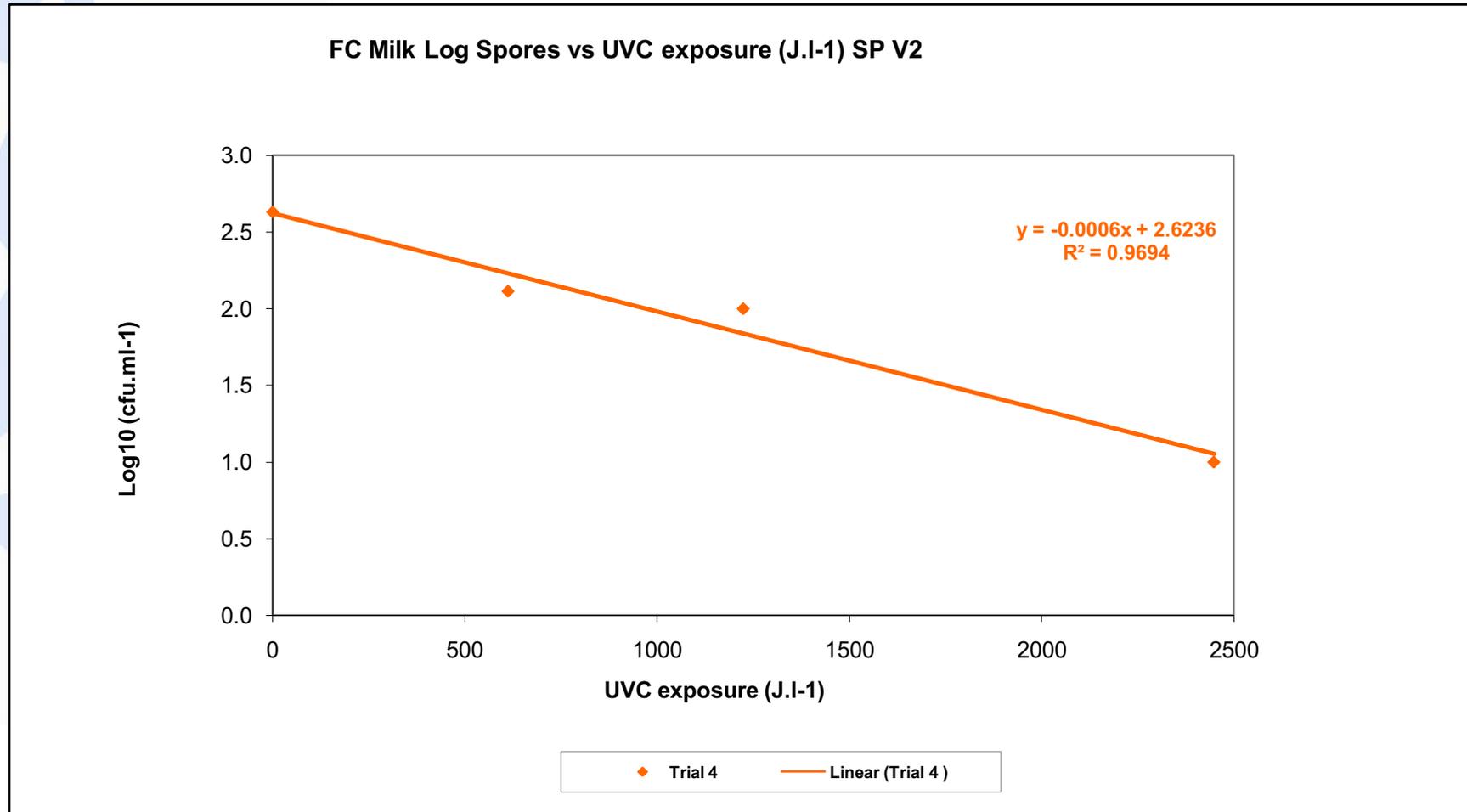
# J/L needed (APC)



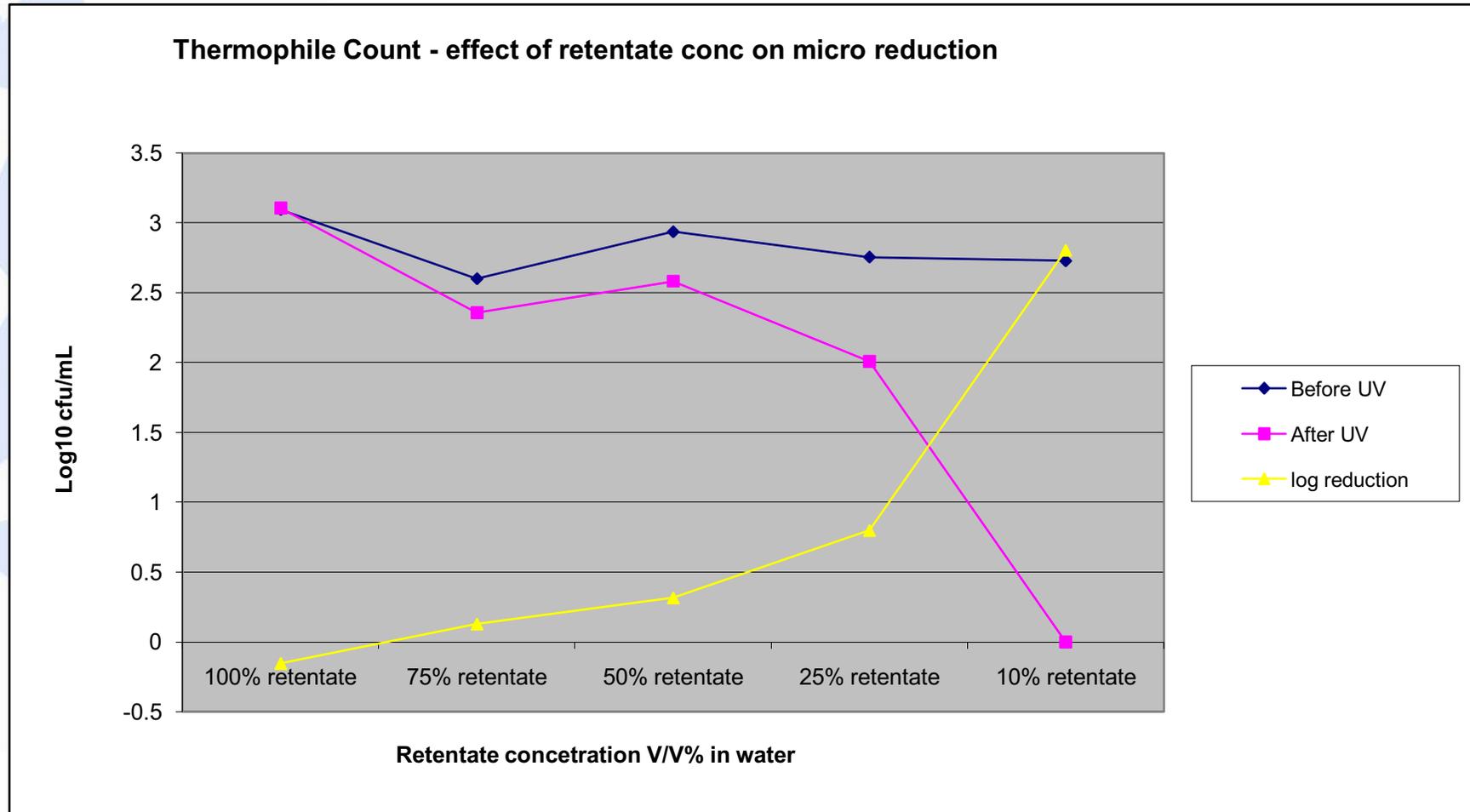
# J/L needed (Coliforms)



# J/L (Spores)

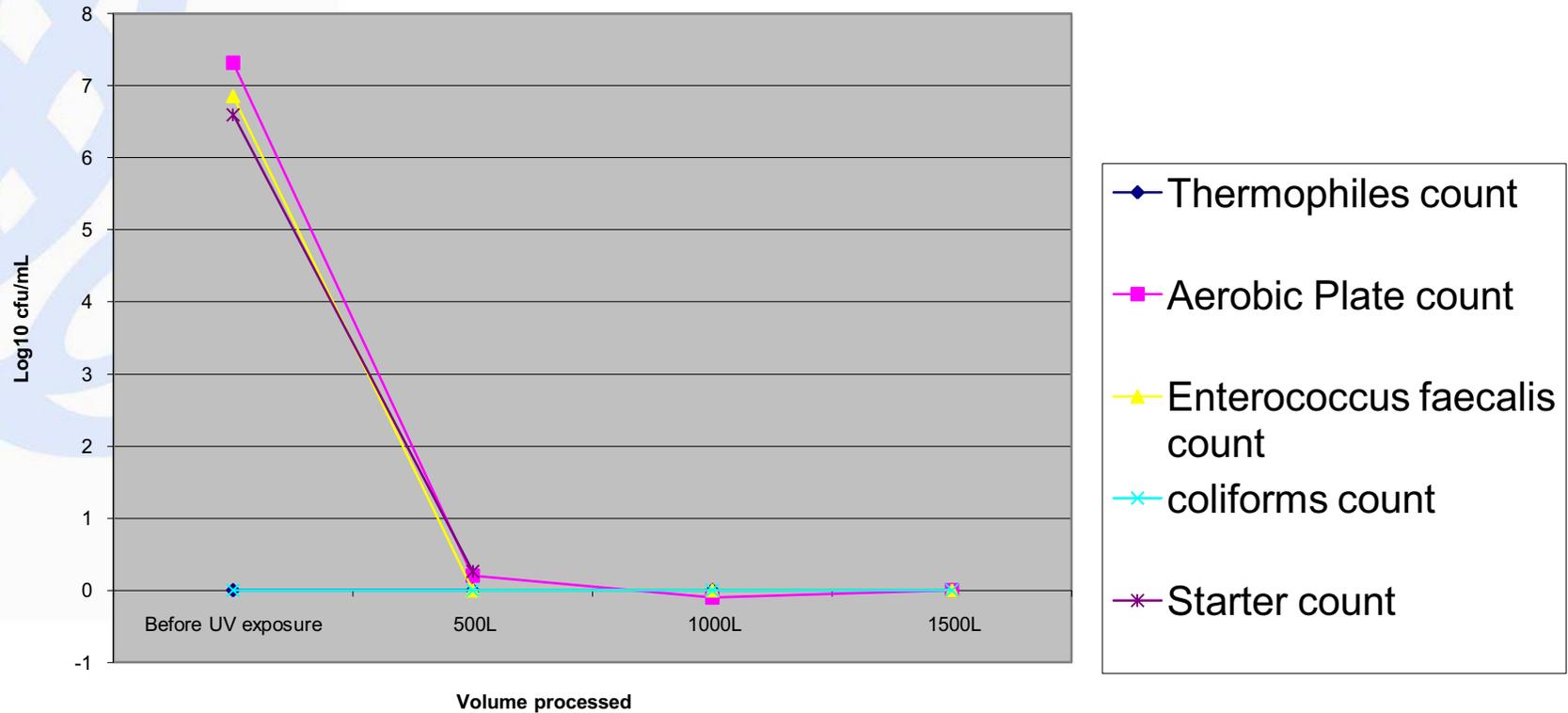


# % Retentate vs UV J/L



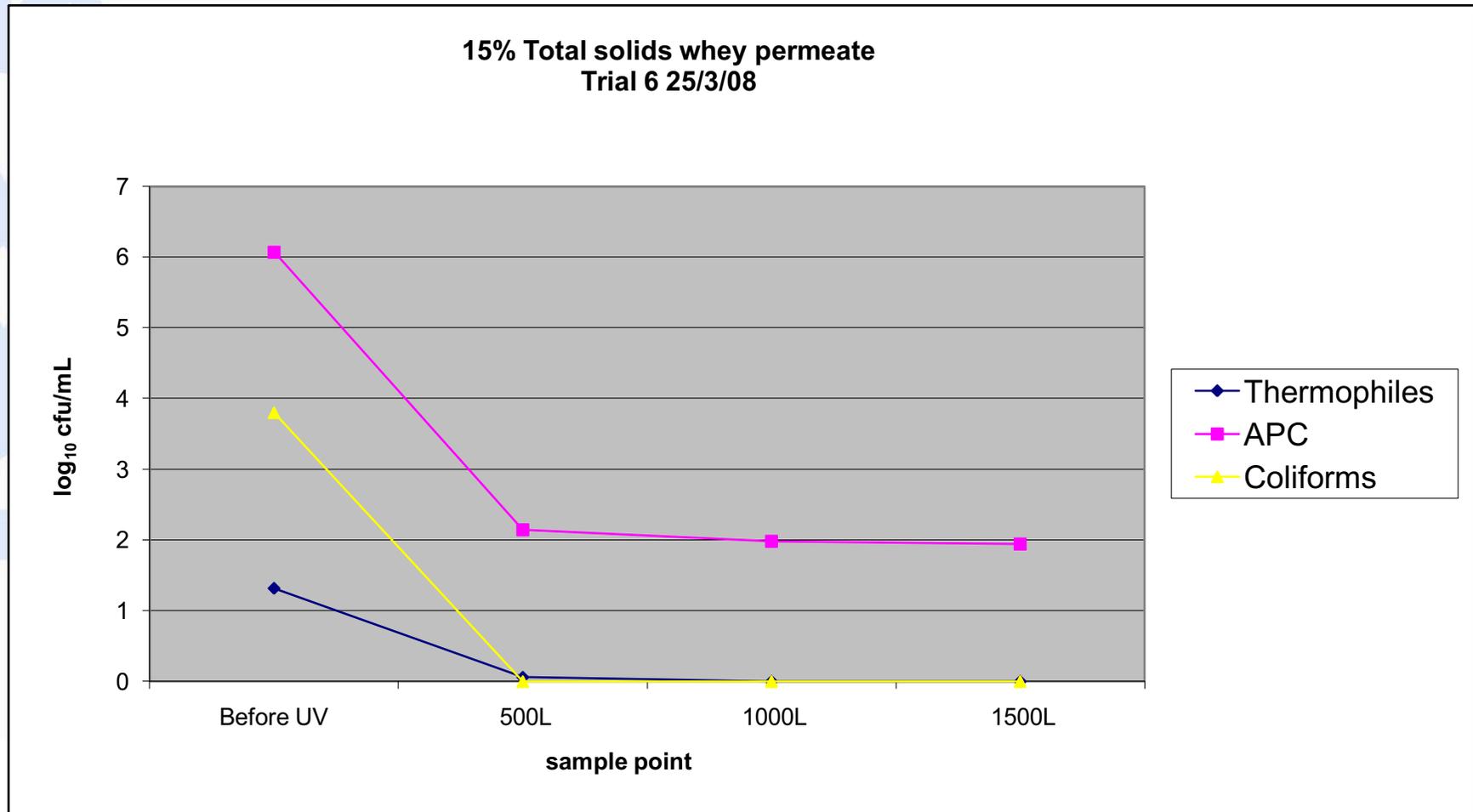
# Whey – E. faecalis

Trial 5 Inoculated Whey (E.faecalis NCTC 775)

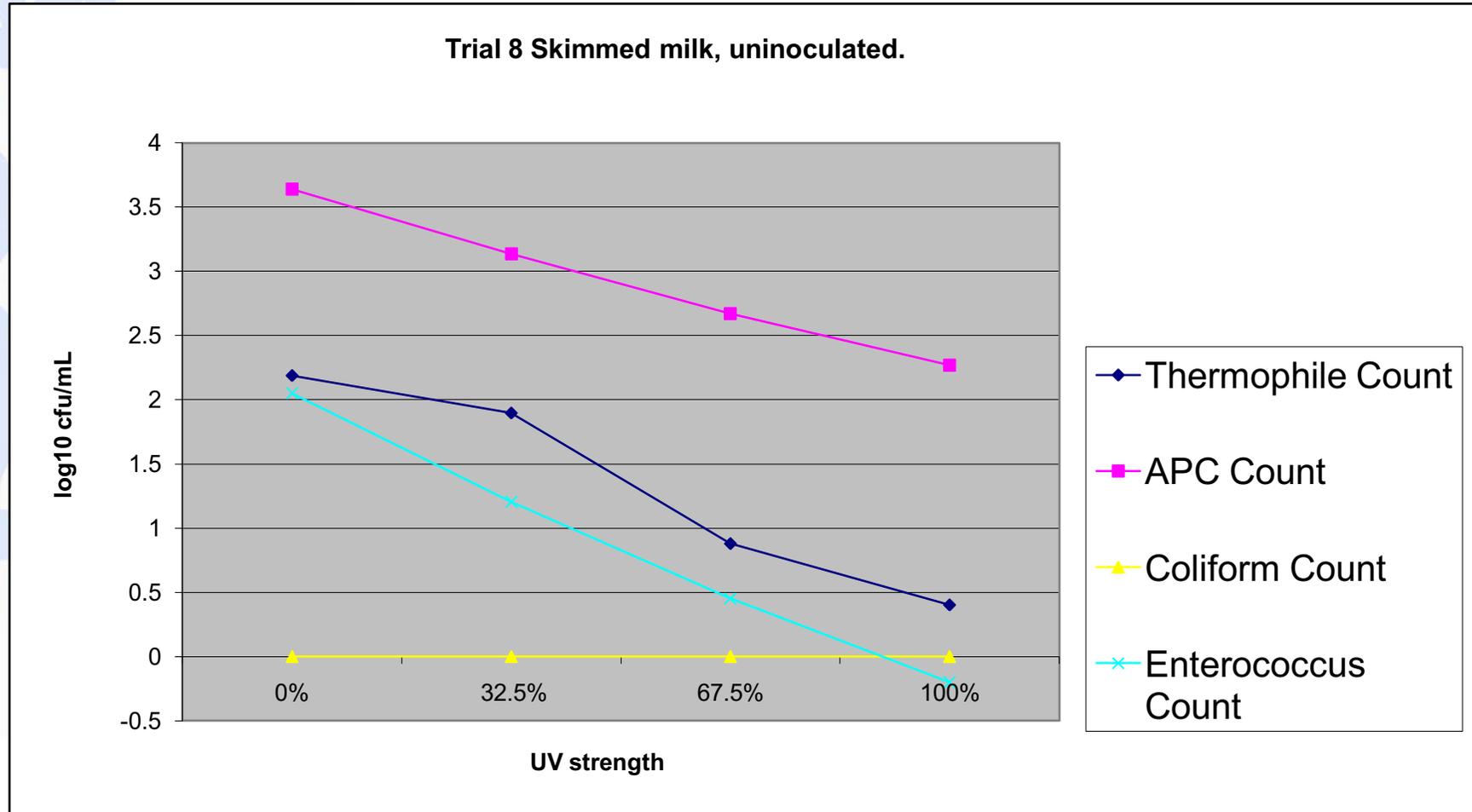


Fonterra, NZ

# Whey permeate



# Skimmed milk



# Team members

- Pieter Gouws
- Tertius Cilliers
- Ilze Müller
- Rudean van Wyk, BSc Hons student
- Wihann Nel





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