

Field Trials with the Antimicrobial Peptide SAMP

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Public interest has been high concerning the new type of antimicrobial peptide (named stable antimicrobial peptide or SAMP) announced by the University of California, Riverside in 2021. This peptide from the citrus relative, *Microcitrus australasica*, has been reported to be able to prevent HLB or improve infected tree health in very controlled circumstances. Antimicrobial peptides in general are small proteins with features that allow them to kill microorganisms like bacteria, fungi, and some viruses. The ways that these small proteins

kill microorganisms can vary, but SAMP appears to poke holes in the outer membrane of the bacterium. The effect would be similar to sticking holes in a rigid balloon, allowing the contents to escape. While SAMP is reported to be effective in the very controlled conditions, it is important to verify if the peptide works in the field.

Field conditions are much harsher with challenges such as UV light, rainfall, or microorganisms that could break the peptide into smaller pieces which may affect its effectiveness. We have two

early-stage field trials with SAMP. The first trial is to look at whether SAMP can protect newly planted trees from HLB. The trees were planted in October 2020. The second trial is focused on whether young HLB-affected trees (4-year-old) can improve their yield, fruit size, and fruit quality after treatment. The peptide is being applied as a foliar application using standard spray equipment along with another application method. Results are still preliminary and are not ready to be reported at this time.

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