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## **FIELD ACCURACY OF HANDHELD PHOSPHINE DETECTION INSTRUMENTS DURING SETUP AND CONTROLLING FUMIGATION**

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### **ABSTRACT**

A short paper given at the 2003 Australian Post-Harvest Technical Conference (APTC) on selection and use of modern phosphine gas sensors raised a question from the floor asking for guidance on "how long was the maximum length of sample tubing that could be connected between storage and monitoring instrument (thus creating a closed-loop and unknown pressure drop) and still maintain reading accuracy"?

Energetic discussion between delegates ensued. However, the simple enough sounding answer that was sought, evoked a more guarded response from the platform who countered with "how long is a piece of string" ? This most central of issues was thrown back to the instrument manufacturers to deal with. Whilst the response may have sounded off-hand, it was in fact an astute reply to a complex problem nagging product designers addressing an ever widening and variable list of fumigation dosing applications as they emerge typically in "closed-loop" operations.

The proposed paper seeks to deal with sampling variables which may cumulate as knowns or unknowns during the sampling of fumigation control process and that interfere with PH<sub>3</sub> reading accuracy thus impacting on fumigation efficacy. The purpose of this paper to increase user confidence by providing them with a number of field checks that they can make to assist themselves.

The author has developed several unique measurement techniques, is qualified in mechanical engineering design and is principal of The Canary Company Pty Ltd, having over 25 years experience in the application of scientific instruments.