

Objectives and Rationale

Few fruit sanitation products are registered and currently available to the South African pome fruit industry. Alternatives to chlorine are needed. This study aims to test potential new sanitisers for use in the pome fruit industry of South Africa.

Methods

An in vitro test was used to test the efficacy of seven sanitiser products against *Penicillium* and *Botrytis*. Four of the most effective sanitisers were included in packhouse water sanitation trials. The efficacy of the sanitisers was tested on tap / dam and flume water from five packhouses. The efficacy of the three most effective sanitisers was tested on apples and pears.

Key Results

KillZa, fulvic acid, Purific, Bestcure, HyperCide, Wondercide and potassium sorbate were selected as sanitisers. Initial results indicate continuing trials with Bestcure, HyperCide, Wondercide and fulvic acid. Results between *P. expansum* and *B. cinerea* differed. HyperCide was as effective as chlorine. Bestcure was effective against *B. cinerea*, but not *P. expansum*. Fulvic acid and Wondercide required a 2X concentration to kill *B. cinerea* spores but was ineffective against *P. expansum*. HyperCide showed improved efficacy when combined with 30ppm chlorine. Packhouse trials confirmed that HyperCide was able to effectively sanitise source and flume water from all the packhouses (even *Botrytis* and *Penicillium* spiked samples). Bestcure, and to a lesser extent fulvic acid, was effective against *Botrytis*. The in vivo sanitation trial on apples and pears experienced problems. It will be redone, hence causing a delay in the reporting date.

Conclusion and Discussion

HyperCide was identified as a possible alternative to chlorine. Bestcure (a green alternative) was effective against *Botrytis* but less against *Penicillium*. Fulvic acid showed potential against *Botrytis* but only at high dose rates. Products with low efficacy, especially green alternatives like Purific, hold potential but require further optimisation.