Project Title:
The use of Harvista™ (pre-harvest 1-MCP) application to control superficial scald on ‘Packham’s Triumph’ pears.

Researcher: Daniël Viljoen
Contact details: Daniel@experico.co.za

Objectives and Rationale

The postharvest application of SmartFresh™ was investigated for superficial scald control on ‘Packham’s Triumph’ pears and although this product showed good control of superficial and senescent scald on ‘Packham’s Triumph’ pears, fruit may experience delayed ripening issues, especially if the product is applied shortly after harvest. DCA storage may also control superficial scald development. However, not enough rooms are available and alternatives are urgently sought. Therefore the aim of this trial was to evaluate the use of pre-harvest Harvista™ sprays (1-MCP) to control superficial scald on ‘Packham’s Triumph’ pears during extended storage.

Methods

Harvista™ was applied to ‘Packham’s Triumph’ pears at release (early optimum), optimum (7 days after release) and late optimum (7 days after optimum). Fruit were harvested ± 3 days after spray application and stored for 3, 5 and 7 months at -0.5°C in RA. Fruit were evaluated after cold storage and a 7 day simulated shelf life at 20°C.

Key Results

2016
Untreated control fruit stored for 7 months were generally softer after cold storage compared to other treatments and storage times. Unacceptable levels of superficial scald occurred on untreated control fruit from the pre optimum and optimum harvested fruit stored for 7 months. Low levels to none occurred on Harvista™ treated fruit. High incidence of superficial scald also occurred after shelf life on untreated control fruit from the first two harvests stored for 5 and 7 months. Unacceptable levels also occurred on Harvista™ treated fruit, but to a much lower extent.

2017
Regardless of concentration, harvest time and storage duration, Harvista™ treated fruit were significantly firmer after shelf life compared to untreated fruit. Superficial scald occurred only on fruit stored for 5 and 7 months. Shelf life results showed reduced levels of superficial scald on Harvista™ treated fruit.

2018
After 5 months cold storage no superficial scald was detected on any fruit. Only after the 7 day shelf life, untreated control fruit developed superficial scald levels of up to 38.7%. Except for fruit from one treatment from one harvest, Harvista™ treated fruit had superficial scald levels below 10%. After 7 months cold storage reduced levels of superficial scald were detected on Harvista™ treated fruit (≤ 11.8%) compared to untreated control fruit (≥ 18.7%). Following the shelf life period after this storage duration, unacceptable levels of superficial scald occurred on all fruit (≥ 54.7%).

Conclusion and Discussion

Harvista™ reduced superficial scald after cold storage and shelf life. However, it did not control the disorder completely. Harvista™ treated fruit were also prone to not ripen during shelf life
and it is advised not to spray Harvista™ near harvest (≤ 4 days). This, however, can be alleviated by increasing the days between spray and harvest.