

# Fresh Inset with its brand Vidre+

Protection for fruits and vegetables.

## Vidre+ effective in delaying the post-harvest ripening of avocado

Alfredo Malarin · Tuesday, November 8th, 2022

**Usage of 1-MCP delivered via Vidre+ packaging stickers used postharvest on Hass avocado showed progressive dose response in ripening. Vidre+ supports retention of external fruit greenness by 30%+ as well as significantly improving firmness over time. These conclusions come from the trials carried out recently at the Horticultural Laboratory of the Universidad of Agraria La Molina (UNALM) in Peru.**

### Time against quality

Peru is among the world's largest avocado producers and one of the main suppliers of this superfood to the USA and Europe. Due to rising global demand, the Peruvian avocado industry is growing. To scientifically prove that Vidre+ is suited to become an alternative for avocado exporters, Fresh Inset has planned a series of trials, including the one shown in this report, in order to show the clear benefits of the use of this new technology.

### 1-MCP delay avocado ripening

J.Jeong *et.al* (2002) findings already indicated that avocado treated with high doses of 1-MCP and kept at room temperature can reach a ripening delay of up to 14 days. The trials undertaken between the 13<sup>th</sup> and 22<sup>nd</sup> of July, 2022 at the Horticultural Laboratory of the Universidad of Agraria La Molina (UNALM) provide further evidence.

The experiment was carried out with Hass avocado harvested the previous day in the fields of UNALM. The fruits were disinfected, selected, and placed into 10-liter export boxes with 4 kilograms of fruits per each unit. Four separate groups of fruits were treated with different doses of Vidre+ stickers placed on the inner sides of the boxes. Each sticker provided 1-MCP concentration equivalent of 1ppm/5 liters. Fruits were maintained at room temperature throughout the test.

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Treatment groups:

- Control, 0 ppm
- 2 stickers, 1 ppm
- 4 stickers, 2 ppm
- 8 stickers, 4 ppm

## Weight, Color, Firmness

The research evaluated 3 parameters: Weight, Color, and Firmness. Key conclusions are:

- In terms of weight. There was a statistically significant difference observed between the control and the highest dose treatment (4 ppm of 1-MCP) reducing weight by an average of 4,87% and 3,98% respectively.
- In terms of color. Untreated control group avocados turned black on the fifth day of the experiment. Treated fruits showed a partial change in color proportional to the dose applied, showing a progressive ripening retardant effect of Vidre+ on Hass avocado, which is visible in picture below:



*Photo: UNALM. Levels of color change on the fifth day after application.  
From left: control, 1ppm, 2 ppm, 4 ppm of 1-MCP.*

- In terms of firmness. Avocado firmness on the 9th day of the treatment was proportional to the dose of 1-MCP Vidre+. The control group avocado was at the limit of firmness\* – only good for guacamole no longer optimal for slicing. Vidre+ showed progressively improved firmness depending on dose, with 2ppm requiring (2-3 more days to reach firm maturity at room temperature), while 4 ppm avocados were considered firm and hard demonstrating a noticeable delay in ripening.

\* Based on the standards from Avocado Technical Manual published by Hass Avocado Board in 2020

## Bottom line

According to the test report Vidre+ showed a dose-dependent result ranging avocado with a slight effect at 1 ppm, moderate effect at 2 ppm, and **a very marked effect at 4 ppm.**

**This result indicated that Vidre+ can provide flexibility of effect depending on dosing which can offer benefits over different export distances and times.**

## Vidre+ Benefits on Avocado

Ethylene is widely known to affect the quality of fruit and vegetables after harvest by increasing respiration and accelerating the ripening processes, which results in reduced shelf life and quality

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over time. Vidre+ defends avocado from the damaging effects of ethylene and thereby slows the respiration process and protects the avocado's quality over time. This extends avocado shelf life during shipment and at the retailer, which gives consumers better quality avocados and reduces food waste.

Source: [University of Florida USA](#), [The Hebrew University Israel](#).

If you have any questions about our Vidre+ solution, please do not hesitate to contact us by email: [krzysztof.czaplicki@freshinset.com](mailto:krzysztof.czaplicki@freshinset.com).