Project Title:
Identify and test improved packaging as well as humidity control in cold stores to reduce moisture loss and shrivel in nectarines.

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Objectives & Rationale
To improve the current packaging of nectarines to reduce shrivel without negative effects on general quality and determine the effect of improved relative humidity control in cold stores on moisture loss and shrivel.

Methods
August Red nectarines were sourced from commercial pack houses in 2017, 2018 and 2019, repacked into different packaging liner types and then accumulated in two cold rooms, one with and one without humidity control. Fruit was weighed at repacking and again after cold storage and subsequent shelf life. Fruit quality was assessed after cold storage as well as after a shelf life period.

Key Results
The results of this study showed that good humidity control during forced-air cooling and accumulation was important for optimizing nectarine quality. It appeared that if relative humidity is well controlled at a high level (> 90 %), the impact of liner type packaging on post-storage nectarine quality may be minimized. The biggest factor influencing moisture loss and shrivel was the type of inner packaging. It was evident that fruit packed without wrappers or perforated bags lost more moisture and developed more shrivel compared to those packed in liners or bags. No substantial negative effects of the liner treatments tested were evident in terms of internal quality. Overall, 36 x 4 mm and 72 x 4 mm perforated bags gave the best mass loss and shrivel control.

Conclusion/Discussion
The 36 x 4 mm and 72 x 4 mm perforated bags warrant expanded commercial testing, in combination with good humidity control during forced-air cooling and accumulation. To simplify, it may be lower risk to test the more highly vented 72 x 4 mm perforated bag only. Impact on fruit ripening and decay, in particular, should be carefully monitored.