Project Title:
Develop a six week bin storage protocol for plums harvested from week 5 onwards.

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Objectives and Rationale
Moisture loss, often manifest as shrivel, as well as decay, are problems that may occur with late season plum cultivars cold stored in bins for up to 6 weeks prior to packing and export. The objective of this trial is to develop a protocol for plums stored in bins with the focus on reducing moisture loss and controlling shrivel, without negative consequential fruit quality effects such as decay.

Methods
Angeleno plums were harvested into bins and then subjected to a SmartFreshSM treatment. Bins were placed in cold rooms either with or without relative humidity (RH) control, with and without a fungicide drench containing Fludioxonil in each instance. The cold room without humidity control had an average RH of 85.6%, while the cold room with humidity control had an average RH of 95.8%. Sub samples were weighed and placed with other fruit in the bins for 6 weeks regular atmosphere cold storage at -0.5 °C. Plums were then re-weighed after bin storage to determine mass loss during bin storage. Fruit from these bins were again weighed and packed in cartons as for commercial export and cold stored for another 3 weeks to simulate shipping and distribution. Fruit were again weighed after cold storage and subsequent shelf life. Fruit quality was also assessed after cold storage shelf life.

Key Results
Humidity control during prolonged bin storage of Angeleno plums reduced mass loss and shrivel significantly, compared to plums cold stored without humidity control. Moisture loss, measured as the mass loss percentage of fruit during cold storage, was significantly higher in fruit drenched with Fludioxonil and cold stored without humidity control in bins, compared to plums in bins that did not receive the drench or that were held in the humidity controlled cold room (irrespective if drenched or not). It is surmised that the risk of decay is too high if there is high decay potential, so the fungicide application is recommended.

Main Conclusion and Discussion
Humidity control during prolonged bin storage is crucial to reduce mass loss of Angeleno plums via moisture loss, and to reduce shrivel levels after subsequent in-carton storage. No decay was recorded in this trial. However, due to the previous dry seasons, the decay potential might have been very low. It is likely that decay risk potential might change with changing seasons; hence, post-harvest fungicide application is probably essential.