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The latest fresh market strawberry bulletin from the OSC.

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## Fresh Market Strawberry Bulletin

**2-10-15**

We still need your help! (Please fill this out if you haven't already)

If you are a grower, please [click here](#) to fill out a 5 minute survey on fresh market production. It will allow us to better understand your needs and plan future bulletins.

**Post Harvest Handling:** How you handle your berries post-harvest can play a huge role in the quality and marketability of your product. **Degradation of fresh strawberries begins the moment they are harvested.** How you handle the berries, cool them, package them, and display them can all affect quality. In this bulletin we focus on the essentials of how to maintain a quality fresh market strawberry post-harvest.

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[Archived bulletins](#) are now available on the OSC website.

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**The Basics:** There are several things you can do to extend the life and quality of your strawberries. Think about all the steps you take from field to shelf, in order to ensure that you provide the best care of your berries.

1. **Field Packing** - Pick directly into the final package. It reduces handling and associated damage and also reduces labor costs.
2. **From Field to Packing Shed** - Make sure that the berries are being transported using a vehicle that ensures a smooth ride. This will decrease

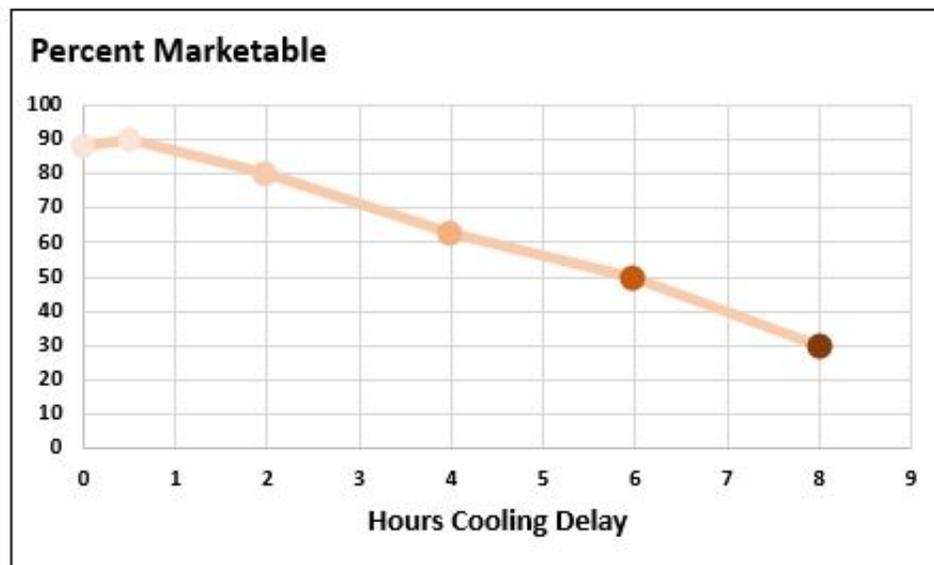
- bruising. Keep the berries shaded if it's a long trip.
3. **At the Packing Shed** - Create a custom line for packing that is efficient, have an easy access loading dock, have a roof that provides protection from the elements.
  4. **Berry Temperature** - The optimum temperature for maintaining fresh strawberries is  $0 \pm 0.5^{\circ}\text{C}$  ( $32 \pm 1^{\circ}\text{F}$ ).

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**Cooling:** This is the single most important factor for maintaining quality.

- Removes field heat
- Lowers respiration
- Reduces water loss
- Decreases sensitivity to ethylene

If you do not already cool your berries for fresh market production, this is strongly recommended. Consider adding a cooling system for the 2015 season.



Cooling delays of 2, 4, 6, or 8 hours reduces marketability by 20, 37, 50, or 70%, respectively, after holding the fruit at  $25^{\circ}\text{C}$  ( $77^{\circ}\text{F}$ ) (Mitchell et al., 1996).

**Bottom line** - the longer you wait to cool your berries, the less marketable they become.

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**Cooling systems:** The most widely used commercial method to precool berries is **forced-air cooling**. Cold air is forced to move rapidly through the containers (versus around the containers as in room cooling), allowing the cold air to be in

direct contact with the warm berries. **Forced-air cooling is typically 75-90 percent faster at cooling than room cooling.**

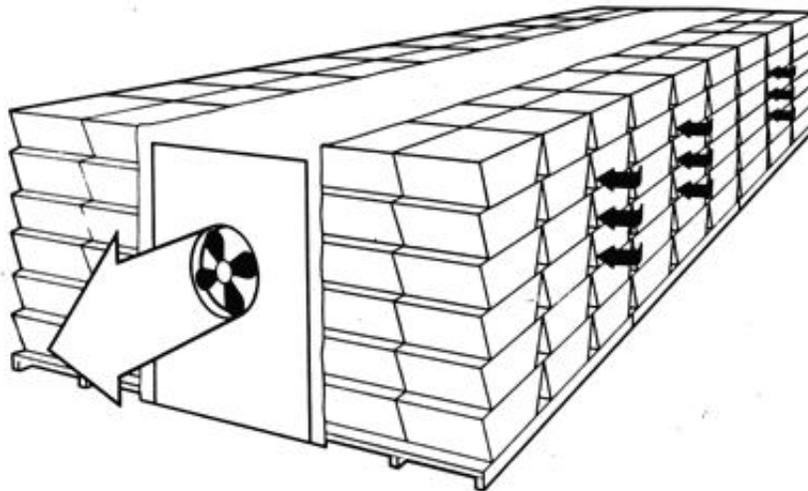
With forced-air cooling, pallets of strawberries are positioned so that the cold air must pass through the package opening and around individual berries. The most common design consists of a tunnel, which is formed by leaving space between two rows of loaded pallets, and the opening is covered with a tarp. With the exhaust fan operating, air is removed from the tunnel and a slightly negative air pressure is created. Cold air from the room then flows through package openings and around warm berries to reach the low-pressure area.

The cooling rate and efficiency of the system depend on a number of factors:

1. the temperature difference between the fruit and the cold air
2. the flow rate of the air
3. the accessibility of the fruit to the cold air
4. the dimensions of the air channel

An inefficient system will increase the cooling time, thus increasing the operating cost and reducing the marketable weight and quality of the fruit.

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**Forced-air cooling** - Pallet boxes are placed to form a tunnel from which air is exhausted. The negative pressure causes the cold air to pass through the air passages between the stacked boxes. (Diagram from Washington State University)



[Polter's Berry Farm](#) in Ohio uses this forced air cooling system. The forced air cooler draws cool air in from the sides across the fruit and out through the exhaust fan.

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### **Additional Resources:**

1. [Cooling and temperature management of strawberries](#). Jennifer DeEll. Ontario Ministry of Agriculture, Food, and Rural Affairs. 2005.
  2. [Post harvest handling of strawberries for the fresh market](#). Presentation given at the Nov, 2014 Oregon Strawberry Commission Fresh Market Workshop, Woodburn, OR. Yanyun Zhao. Oregon State University.
  3. [Temperature management: cooling & storage \(Youtube video\)](#). Jim Thompson. UC Davis. 2013.
  4. [Commercial cooling of fruits, vegetables, and flowers](#). (A practical handbook for those looking to learn more about produce cooling and the designs needed to build your own system.) Can be purchased for \$15 from UC Davis.
  5. Recommendations for maintaining postharvest quality. In [English](#) and in [Spanish](#). UC Davis.
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### **Upcoming Events:**

- **February 19 - Oregon Strawberry Commission Annual Meeting.** 9 am - 12:30 pm. At the North Willamette Research and Extension Center, 15210 NE Miley Rd, Aurora, OR. Call 541-758-4043 or email Philip Gutt,

pnwa@comcast.net for more information.

- **February 27 - Oregon Farmers Market Association.** Annual Member Reception and Dinner (open to all members whose memberships are up to date). At the Adair Clubhouse, 6097 NEW Ebony Lane, Corvallis, OR. The Annual Meeting will be on Feb. 28, 7:45-8:45 am in conjunction with the OSU Small Farms Conference. For more information, [click here](#).
- **February 28 - 15th Annual OSU Small Farms Conference.** At LaSells Stewart Center, Corvallis, OR. From 7:30 am - 4:00 pm. Read the [event agenda](#) or go to the [website](#) for more information.
- **March 11 - Oregon Strawberry Commission** ~ Commission Meeting. Research Committee Meeting at 11:30 am, regular Commission Meeting at 12. Call 541-758-4043 or email Philip Gutt, pnwa@comcast.net for more information.

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### In the Upcoming OSC Bulletins...

Information on soil health, pest management, and mulches.

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For more information on fresh market production and resources, check out the [OSC website](#).

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This bulletin edited and sent by [Peerbolt Crop Management](#). For questions or inquires about signing up, contact the office: 503-289-7287 or [pcm@peerbolt.com](mailto:pcm@peerbolt.com)



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