



Critical Temperatures for Blossom Buds

CHERRIES

The temperature at which fruit buds are injured depends primarily on their stage of development. Buds are most hardy during the winter when they are fully dormant. As they begin to swell and expand into blossoms, they become less resistant to freeze injury.

Not all blossom buds are equally tender. Resistance to freeze injury varies within trees as it does among orchards, varieties, and crops. Buds which develop slowly tend to be more resistant. As a result, some buds usually are killed at higher temperatures, while others are resistant at much lower temperatures. To indicate this range, researchers developed a set of temperature values based on data collected at the Washington State University Prosser Irrigated Agriculture Research and Extension Center. It shows the average temperatures required to kill 10% and 90% of the buds, respectively.

In determining the need for frost control, orchardists should factor in the range in temperatures at which buds are killed. Orchards having a large number of buds should withstand more frost than those having only a light set of buds.

Also consider the weather conditions preceding cold nights when looking at critical temperatures. Prolonged cool weather tends to increase bud hardiness during the early stages of bud development.



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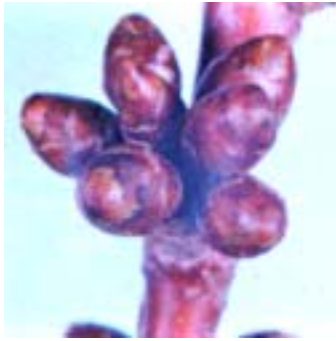
Ronald B. Tukey, WSU Cooperative Extension horticulturist, deceased.

Photos by **Harlan Mills**, former WSU Senior Experimental Aide.

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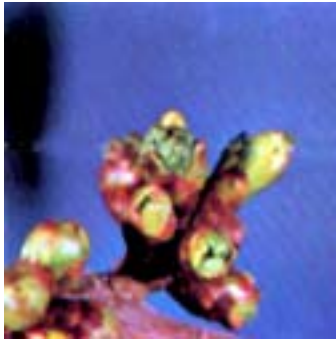
1-First Swelling



2-Side Green



3-Green Tip



4-Tight Cluster



5-Open Cluster



6-First White



7-First Bloom



8-Full Bloom



9-Postbloom

CHERRIES

CRITICAL TEMPERATURES FOR BLOSSOM BUDS*

Bud Development Stage	1	2	3	4	5	6	7	8	9
Old Standard Temp. ¹	23	23	25	28	28	29	29	29	30
Ave. Temp. for 10% Kill ²	17	22	25	26	27	27	28	28	28
Ave. Temp. for 90% Kill ²	5	9	14	17	21	24	25	25	25
AVERAGE DATE (PROSSER) ³	3/5	3/13	3/23	3/27	4/1	4/4	4/8	4/13	4/21

* For Bing, Lambert and Rainier approximately 1 to 2 degrees hardier through Stage 6.

¹ Critical temperatures as previously published in WSU EM1616.

² Average temperatures found by research at the WSU Prosser Irrigated Agriculture Research & Extension Center, to result in 10% and 90% bud kill.

³ Average date for this stage at the WSU Prosser Irrigated Agriculture Research & Extension Center.