

Critical Spring Temperatures for Tree Fruit and Small Fruit Bud Stages

Compiled by Mark Longstroth, District Extension Horticulture Agent, MSU Extension

Pome Fruit									
Apples	Silver Tip	Green Tip	½ inch green	Tight Cluster	First Pink	Full Pink	First Bloom	Full Bloom	Post Bloom
Old temp	16	16	22	27	27	28	28	29	29
10% kill	15	18	23	27	28	28	28	28	28
90% kill	2	10	15	21	24	25	25	25	25
Pears	Bud Swell	Bud Burst		Tight cluster	First White	Full White	First Bloom	Full Bloom	Post Bloom
Old temp	18	23		24	28	29	29	29	30
10% kill	15	20		24	25	26	27	28	28
90% kill	0	6		15	19	22	23	24	24
Stone Fruit									
Apricots	Bud Swell	Bud Burst	Red Tip	First White	First Bloom	Full Bloom	In the Shuck	Green Fruit	
Old temp	--	23	--	25	--	28	--	31	
10% kill	15	20	22	24	25	27	27	28	
90% kill	--	0	9	14	19	22	24	25	
Peaches	Bud Swell	Calyx Green	Calyx Red		First Pink	First Bloom	Full Bloom	Post Bloom	
Old temp	23	--	--		25	--	27	30	
10% kill	18	21	23		25	26	27	28	
90% kill	1	5	9		15	21	24	25	
European Plums	Bud Swell	Side White	Tip Green	Tight Cluster	First White	First Bloom	Full Bloom	Post Bloom	
Old temp	--	--	--	--	23	27	27	30	
10% kill	14	17	20	24	26	27	28	28	
90% kill	0	3	7	16	22	23	23	23	
Sweet Cherries	Bud Swell	Side Green	Green Tip	Tight Cluster	Open Cluster	First White	First Bloom	Full Bloom	Post Bloom
Old temp	23	23	25	28	28	29	29	29	30
10% kill	17	22	25	26	27	27	28	28	28
90% kill	5	9	14	17	21	24	25	25	25
Tart Cherries	Bud Swell	Side Green	Green Tip	Tight Cluster	Open Cluster	First White	First Bloom	Full Bloom	
10% kill	15	24	26	26	28	28	28	28	
90% kill	0	10	22	24	24	24	24	24	
Small Fruits									
Concord Grapes	First Swell	Full Swell	Bud Burst	First Leaf	Second Leaf	Third Leaf	Fourth Leaf		
10% kill	13	21	25	27	28	28	28		
90% kill	-3	10	16	21	22	26	27		
Strawberries	Buds Emerged		Buds Closed			Bloom		Small Fruit	
Damage	10		22-27			28		28	
Blueberries	Bud Burst	Pink Bud	Open Flower		Petal Fall		Green Fruit		
Damage	< 20	< 25	27		28		28		

Old standard temperature is the lowest temperature that can be endured for 30 minutes without damage.

This chart also shows the temperature that will kill 10 % and 90 % of normal fruit buds.

These numbers were taken from Washington (WSU), Michigan (MSU) and North Carolina (NCS) Extension Bulletins. Apple - WSU EB0913, Pears - WSU EB0978, Sweet Cherries - WSU EB1128, Peaches - WSU EB0914, Apricots - WSU EB1240, Tart Cherries - MSU Research. Rpt. 220,

Portions of these bulletins are posted at Gregg Lang's [Fruit Bud Hardiness](#) Page at the [MSU Horticulture Department](#)
Two others are posted on the web: Concord Grapes - [WSU EB1615](#), Blueberries, [NCS- HIL-201-E](#)

For information on current SW Michigan Fruit Development see the [Fruit Update](#).

For more information on freezing injury see my [Frost Freeze Page](#)



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