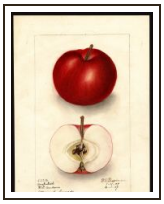
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Apple Frost Damage Chart

Critical spring temperatures by bud stage, from Michigan State University Extension's compilation of the WSU and MSU bulletins.



The temperature that kills 10% and 90% of apple buds after 30 minutes, by bud stage. Buds grow more tender as they open, so the same frost does more harm later in spring.

Bud stage	10% killed	90% killed	Between 90% and 10% killed	Date reached this year
Silver tip	15°F (−9°C)	2°F (−17°C)		
Green tip	18°F (−8°C)	10°F (−12°C)		
½-inch green	23°F (−5°C)	15°F (−9°C)		
Tight cluster	27°F (−3°C)	21°F (−6°C)		
First pink	28°F (−2°C)	24°F (−4°C)		
Full pink	28°F (−2°C)	25°F (−4°C)		
First bloom	28°F (−2°C)	25°F (−4°C)		
Full bloom	28°F (−2°C)	25°F (−4°C)		
Post bloom	28°F (−2°C)	25°F (−4°C)		



Reading the chart. At the 10% figure about one bud in ten is killed after 30 minutes of cold; at the 90% figure, about nine in ten. A blank cell (—) means the published table gives no figure for that stage. °C figures are conversions, rounded.

Cold-night log

Date	Low (°F)	Bud stage	What you saw afterwards

Source: Michigan State University Extension compilation of the WSU and MSU critical-temperature bulletins

Data as of 15 Nov 2026