Triggers in Trees

The transition from dormancy to leafing out is governed by three factors:

1. 

2. 

3. "Preformed" buds are made in the previous year, then begin growing in the spring. These can be leaves or flowers.

Autumn

Trees undergo two periods of acclimation to get ready for winter.

1. The first is called (0-15°C) What happens during this chilling period?

2. The second, occurs at <0°C and is not as well understood. See the other side of this sheet for more.

Meanwhile... what happens to those dropped leaves (the "litter")?
Once acclimated, temperate trees can withstand a lot! If slowly acclimated to cold temperatures, many branches can be dropped in liquid nitrogen (\(-196^\circ C/\text{320}^\circ F\)) and then leaf out. But under real conditions, winter can be hard for trees!

How do we know? Why?

How do they do it?

1. Physical Damage
   - Sucrose

2. Physiological Performance
   - Dehydration and supercooling
   - Antioxidants

3. Cellular Damage
   - Changes in cell membranes

J. S. Grossman 2019