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Press release

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# “Snow and blueberry pie are connected.”

**Snow-free slopes at 1,900 m.a.s.l.: SLF biologist Christian Rixen explains the consequences for plants, why late frost becomes a risk and what that means for the blueberry harvest.**

- Snow protects plants: Without snow cover, the frost hits them harder. Early sprouting can lead to damage.
- Late frost is a hazard: Plants start growing earlier, but frost can damage them. Harvests of blueberries and other fruit are at risk.

Mr Rixen, there isn’t much snow in the mountains. Even here in Davos, the first steep slopes facing the sun are already clear. Might plants sprout or germinate earlier this year?

Not all of them. Many mountain plants only become active when the daylight reaches a certain length, for example when the sun shines for more than 12 or 13 hours. These species are usually well protected from frost in winter and snow cover doesn’t play such a major role. The situation is different for species that start growing at a certain temperature. For them, winters with little snow can increase the risk from frost.

In what way?

Generally speaking, snow cover protects and insulates vegetation and soil. Without any insulating snowpack, soils are more likely to become entirely frozen and plants are exposed to more extreme temperatures. For example, the alpenrose is well covered with snow in most years. If there is no snow, it becomes physiologically active, i.e. it emerges from its winter dormancy and resumes vital processes such as photosynthesis and growth. However, as soon as it does this, it is susceptible to frost damage. So the lack of snow this winter won’t necessarily lead to an early spring with lots of flowers. On the contrary, it will even hinder the growth of some plants. Even our harvests could potentially be affected.

Because the harvesting season is delayed?

More likely because of a late frost coming at the wrong time. We’ve already seen instances where blueberries that were free of snow early on also sprouted leaves and flower buds early. A late frost then caused all the flower buds to die and there were no blueberries that year – except in places where the snow was lying for longer. In these locations, the plants were protected from the frost. In years like that, making blueberry pie becomes problematic, because the snow situation and blueberry pie are connected. But even at lower altitudes, crops can be damaged if they develop too early. That doesn’t have anything to do with the snow cover, but if vines or fruit blossoms, for example, develop too early, late frosts can lead to crop losses of up to 100%, as we’ve experienced several times in recent years.

Don’t warmer temperatures automatically lead to a lower risk of frost?

Not necessarily. Even in warm years, when plants develop early, the risk of late frosts remains high. This means that the potential for damage is actually greater because the young leaves are sensitive. And even in a warmer climate, it may be that the risk of frost remains high due to extreme temperature fluctuations. So the fact that slopes are already snow-free even at higher altitudes tends to pose a risk to plants.

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URL for press release: https://www.slf.ch/en/news/snow-and-blueberry-pie-are-connected/ News article on the SLF website

The little alpine bell comes as soon as the snow is gone.
Veronika Stöckli
SLF

SLF biologist Christian Rixen: "The lack of snow this winter won't necessarily lead to an early spring with lots of flowers."
Brigitte Wenger
SLF