



Frost Effects on Plants Likely

The recent much cooler than normal temperature stretch not only slowed plant growth and development, but will also likely leave impacts which will be visible for the entire growing season. Damage to plants from cold temperatures is somewhat unpredictable, even though we know it got cold. Topography, soil moisture status, plant health status, and innate frost susceptibility all interact to change a plant's precise impact from cold temperatures. Further, the key determinant is exactly how cold did it get and how long did it stay at that temperature?

Rather than trying to go through all the temperature nuances, let's sum up the last couple weeks of cold by saying it is likely that nearly all landscapes in our area got cold enough to have some type of impact on plants. Herbaceous perennials are likely the ones which will have the most noticeable problems. Many of the really early-blooming flowers had their bloom time cut significantly, as most open flowers were not able to survive the temperatures if they were not protected. Later spring and early summer blooming species may have had their blooms killed completely, if their flower buds were developed and exposed above ground. Late season blooming species hopefully will not have much effect, as their flower buds were not yet formed.

Many different types of herbaceous perennials will show damage from our recent temperatures to their leaves, however, even if flowers are not affected. Most areas in our region got cold enough to see damage to the emerging growth. Some species will actually die back to the ground and have to start completely over, others will just have discoloration on leaf material. The color of affected material will differ according to the species and/or cultivar, but may be black, brown, gray, white, streaked, or simply water-soaked in appearance. Any dead or damaged material will likely inhibit normal leaf development of at least the stems which were more advanced, resulting in crinkled or torn-looking leaf material for the entire growing season. The greater the level of damage, the higher the likelihood that the quality or quantity of their bloom display will be negatively affected the rest of the season.

In shade trees, damage should be relatively minimal. Some of the early blooming tree species may have less seed production than normal, as their flowers were likely impacted. Leaves of native species should not show much, if any, damage, though, as they are relatively resistant to early season cold. Non-native plants may show some damage, but will be very species dependent.

For food-producing plants, damage may also be present. Fruit trees, especially ones that were in warmer microclimates, were probably far enough along in their year's growth that flower buds are going to be negatively impacted. They may still bloom, but may not be able to set fruit due to sterility. Again, the effect of the cold is going to be very different from location to location. That said, the species of fruit trees most likely to be negatively impacted are the stone fruits, as they bloom earlier than apples and pears.

In the vegetable garden, the most significant impact of our recent cold for most gardeners will simply be delayed growth and development. Early planted crops did not germinate normally, and some gardens will see thinner stands due to early season stress. Anything that was emerged may have some damage, or be completely killed, depending on the species and the situation. Annual plants that were not yet transplanted should be alright, as long as you brought them inside every night. If you left them out accidentally, you may have to invest in new plants. Lastly, a lot of the perennial vegetables will show some impacts: Asparagus spears that were emerged and not harvested will degrade and not be edible; rhubarb leaves which were emerged may be undersized, compared to normal; others that were emerged will probably experience similar impacts, but none of them should have been severely impacted.

The damage has been done, and the only thing we can do now is protect our plants from further damage due to these impacts. Plant material that was killed should be pruned back so that ragged edges do not leave openings for diseases later in the year. Perennials which have die back, especially ones which have to start growth completely over, should be given extra care this year. If they experience other significant stresses (drought, insects, disease) they may have a very difficult time surviving next winter, due to insufficient crown recharge.

If you want to try to minimize cold temperature effects in upcoming years, one of the best things you can do this coming late fall is mulch your plants properly. A good layer of mulch over and around perennials will slow down plant development in the spring and help prevent plants from being exposed to damage. Although you do need to remove mulch when soils warm and growth begins, the mulch can be stored nearby, in case you need to re-cover any plants when a frost event threatens.

If you have questions about these issues, or any other horticultural or agricultural question, you are able to contact Scott Reuss, Marinette County Agriculture/Horticulture Agent with UW-Madison, Division of Extension. He can be reached by phone at 715-732-7510 or e-mail to scott.reuss@wisc.edu