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Cold Weather Impacts on Plants

AGRI-VIEWS

by Chuck Otte, Geary County Extension Agent

A week and a half ago we had cold weather roll through the area. Another round rolled through late this past week. The temperatures that we experienced in both of these events were neither record setting nor unexpected. They seemed, perhaps, cruel because in both cases they were preceded by temperatures in the 70s and 80s. Which then raises the questions of how much damage has been done to fruit trees, ornamental flowering shrubs, etc.

Warm weather in late March and early April is cruel. We are so impatiently waiting for spring and we get a taste of it and then Mother Nature says, "Not so fast!" We need to remember that the average last frost, since 1951 is April 14th. But in that same time frame it has been as late as May 14th. We generally feel that our frost free date is about May 10th. That is the date when the ground has generally warmed up enough that cold sensitive plants like tomatoes won't be shocked. The risk of a frost is also quite remote by then as well. So temperatures in the 20s in the first half of April aren't at all unexpected.

Unfortunately those early warm spells tend to encourage plants to break dormancy and start growing. The warmer it gets and the longer that those temperatures are above average, the more growth, tender young growth, these plants will have. When the temperature then falls below freezing damage may happen. How much damage depends on the species of plant, stage of growth and what plant part you are concerned about.

For anything that blooms first thing in the spring, think fruit trees, forsythia, lilacs, etc., these blossoms are initiated in the late summer of the year before. The flower buds are only formed then, they generally stay dormant and then bloom first thing the next spring. If that plant experiences freezing weather that kills the flowers, then that's it for that year. They can not generate new flower buds. Leaves and leaf buds may be killed but there are dormant buds that can generate new leaves in fairly short order. Flowers are just out of luck and you'll have to wait for the next cycle of flower bud development next year.

If we look at the most sensitive of fruit trees, or perhaps the most at risk, we have peaches and apricots. They were both blooming when we had the April 3rd cold weather. If buds were showing pink color, which is shortly before they go into full bloom, they will start to be damaged (killed) at 25 degrees and if it gets down to 18 degrees you can expect 90% bud kill. At full bloom, flower buds will start to be killed at 27 degrees and 90% bud kill occurs at 24 degrees. We generally say that it takes about two hours at these temperatures. The April 3rd event had temperatures into the mid 20s for about six hours. Was there damage to fruit blooms? Yes. Did it kill all the flower buds on peaches and apricots? Time will tell and that's honestly the best we can do. Most apple, pear and tart cherry trees were holding tight enough bud that I think we had very minimal damage.

As for flowering shrubs, like lilac and forsythia, what I've seen is mainly leaf damage and most of the flower buds are continuing to grow and develop. It's important to recognize that we can have damage to the tiny flower parts so that a fruit tree won't set fruit, but the blossoms will still open. With flowering shrubs we worry less about whether they set seed. Spring flowering bulbs and plants like peonies can be laid flat by freezing weather, but once it warms up they will come back and be just fine. They are tough! So was their damage? Yes. Permanent damage? Not likely. Will I have peaches or apricots this year? Might be a tough year for that, but time will tell for sure!

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