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- **Info on Dormant Pruning**

## **Dormant Pruning**

As quite often is the case for early January, temperatures and snow load in the orchard are suitable for growers to be outside pruning. The one drawback with pruning at this time of year would be there is a high risk of this contributing to freezing damage.

There are three types of damage that could result; damage to the cambium layer of the bark, bark die back around the pruning cut, and damage to the wood (xylem). I have only observed two of the three types of damage over the past 33 years. In 1980 a low of  $-23^{\circ}\text{C}$  was recorded at Kentville on December 26<sup>th</sup> with an additional 10 evenings when temperatures dip below  $-15^{\circ}\text{C}$ . Damage to apple trees was not evident until around bloom time when trees and limbs began to die. Most of the damage occurred to the cambium layer of the bark on the trunk and lower scaffold limbs. Some injury to the fruit spurs was observed on Gravenstein and King trees. In many cases the cambium was not totally killed and over time the trees healed. The damage can still be seen on trees that still exists as a brown ring in the wood. Grower surveys in 1981 and 1982 indicated that over 7,345 trees were lost with an additional 4,136 trees injured. The survey indicated the majority of the trees killed or injured were Gravenstein (43%), Cortland (13%), McIntosh (11.5%) and Spy (11.6 %). One of the least hardy cultivars grown in Nova Scotia is Gravenstein, which would explain the higher percentage of losses for this cultivar. Literature indicates that apple trees can survive low temperatures in excess of  $-50^{\circ}\text{C}$  without signs of damage while on the other hand a low of  $-2^{\circ}\text{C}$  can result in damage. It was felt that in 1980 apple trees had yet to fully harden off and therefore a temperature that would not have caused a problem from mid-January to mid-March did end up damaging or killing cells in the lower portion of apple trees.

It is usually around mid-January that apple trees reach full hardiness. In 1993 Kentville reported a low of  $-30^{\circ}\text{C}$  on February 7<sup>th</sup> and Greenwood report lows of  $-32.6^{\circ}\text{C}$  and  $-35.5^{\circ}\text{C}$  on February 6 and 7<sup>th</sup>. The record low for Kentville is  $-31.5^{\circ}\text{C}$  and Greenwood  $-35.5^{\circ}\text{C}$ . In this case the cambium layer of the bark was not damage but the wood cells were. This type of damage is referred to as brown heart which was not noticed until around bloom time when trees began to die. The damage was observed in many areas of the Valley with the most extensive damage occurring on fruit trees located in low lying areas. It was felt that losses from this freeze were

less than one percent, however it took a number of years for trees to recover from the damage and yield was affected for a number of years following the freeze. You can still see this damage on trees that existed before the freeze when orchards are cut down.

Environment, cultural practices and plant genetics' all play a role in winter damage. In terms of preventing winter damage there is not a great deal that a grower can do when it comes to the environmental factor with the exception of site selection. When it comes to genetics; growers have the option of selecting cultivars and rootstock that best fit the local environmental conditions. Where a grower does have the greatest influence on reducing or preventing damage is cultural practices. Nutrition, crop load, water management, ground cover and pruning all have an influence on the trees ability to withstand freezing temperatures. A healthy tree is better able to withstand freezing temperatures than a weak tree.

At this time of year pruning practices can have an influence on winter damage to fruit trees. Late fall-early winter pruning prior to the onset of full hardiness can reduce the trees ability to withstand freezing temperatures. Interestingly enough a high percentage of the tree injured in 1980 had not been pruned prior to the low temperatures. There were however, one or two cases where the trees had been heavily pruned and the whole block was lost. Pruning in the late fall to early winter tends to delay the onset of dormancy thus the trees are not able to withstand the same level of freezing temperatures that un-pruned trees can without being damaged.

Pruning from this point on in the season until late February presents a great risk of freezing damage to the bark around the pruning cut. The cells around the pruning cut are stimulated as a result of the cut and become more sensitive to freezing temperatures. These cuts will not heal over and leave a site for canker and rot to enter. It is usually temperatures below  $-20^{\circ}\text{C}$  that one has to be concerned about. Weather condition prior to extreme cold, duration of the low and rate of temperature decline all have an influence on this type of damage.

If you were to ask me can I safely prune my apple trees now, my answer would be no because there is a greater risk of damage to the trees now than in March.

If I owned orchard would I be out there taking advantage of the good conditions the answer would be yes. I base this upon the past history of winter damage to fruit trees in Nova Scotia but I would be cautious about how I went about it. I would approach pruning orchard at this time of the year in the following way:

- I would start with the block that had the least value. One that I would likely replant within the next few years.
- I would start with the harder cultivars in the block such as McIntosh and Cortland and leave the less hardy cultivars such as Gravenstein and Jonagold to later.
- If the block needs major pruning cuts I would move onto a block that only required a light pruning. The heavier a tree is pruned the greater the risk of damage from extreme low temperatures.
- I would avoid pruning young trees until late March.

- I would be following the weather forecast and avoid pruning just before (1 to 2 days) and during extreme low temperatures (-24°C and lower).
- If I wait until March I could be up to my arm pit in snow and still pruning after bloom.

*Editor: Bill Craig, AgraPoint*

## Spring Workshop

In discussion with Larry Lutz, it was expressed that there is a need for a winter workshop to help growers understand and deal with the red tape that is required with regard to obtaining off shore labour, providing housing for labour, work place safety, first aid requirements for staff and on farm food safety.

Please take a few moments to fill out the following questionnaire. If there is enough grower interest we will proceed to develop this type of workshop to be held in the Kentville area.

1. Would you be interested in attending this type of workshop?

Yes  No

2. Which length workshop would you rather attend?  1 Day  2 Day

3. Which would be the most suitable week for you to attend the workshop?

Week of February 13-17

Week of February 20-25

Week of February 27-March 2

Any of the above

4. What registration fee would you be willing to pay to attend this workshop?

\$25.00

\$35.00

\$45.00

5. Are there any other topics that you would like to see covered?

Yes  No

If Yes, please explain:

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**Please return completed questionnaires to:**

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