



Cherry growers must contain the *Cherry Leaf Roll Virus*- A new cherry disease to Pacific Northwest.

By Michael R. Bush, Ph.D.

Washington State University Extension, Yakima County.

Cherry leaf roll virus (CLRV) is a new fruit tree pathogen in the Pacific Northwest that threatens commercial cherry production! *CLRV* was isolated in the Pacific Northwest in 1998 and identified by Dr. Ken Eastwell, a virologist at Washington State University working at the Irrigated Agricultural Research & Extension Center in Prosser. Over the past two years, Eastwell, and coworker Bill Howell, isolated the virus from sweet cherry trees in over 45 (. . . and counting!) commercial blocks throughout the Yakima Valley and the lower Columbia Basin. In most cases, the virus was found in an isolated cherry tree, but it can quickly spread to adjacent trees in the same block. In two cases the virus had spread throughout entire block of cherry trees, weakening and killing many trees. These blocks are no longer commercially viable. Growers must remove cherry trees infected with the *CLRV* and they must be removed as soon as possible to prevent spread of this lethal tree pathogen to nearby trees and orchards. Cherry trees infected with *CLRV* will exhibit poor tree vigor, stunted leaf growth, delayed harvest and poor fruit quality. Early in the spring, growers will detect a delay in both leaf expansion and flower bloom. Often this delay in expansion or bloom will occur on one scaffold while the other scaffolds develop normally. Over the next few seasons, these symptoms will continue to spread to other scaffolds as the virus spreads throughout the tree. During preharvest, growers may notice excessive leaf yellowing and leaf drop in cherry trees infected with the *CLRV*. At harvest, growers may notice delayed ripening in cherries by 4-7 days on some scaffolds while others ripen normally. Other symptoms include heavy fruit set, small cherry size and poor cherry color. These symptoms are all weather dependent and are most prominently expressed during cool, wet springs. While growers find these symptoms troublesome, they are making a grave mistake leaving these trees in production.

Two other common viruses associated with cherries are *prune dwarf virus* and *prunus necrotic ringspot*. Since these viruses are not very virulent (lethal to cherry trees), they have silently infected trees throughout the Yakima Valley and Columbia Basin. **GROWERS BEWARE! Tree decline associated with *CLRV* will be swift and lethal when it infects trees previously infected with these other common cherry viruses.**

When cherry trees are infected with both *CLRV* and *prune dwarf virus*, the symptoms are most ugly and deadly. Growers will notice an unusual leaf growth habit as the virus-infected leaves emerge, but remain

in a tight whorl for several weeks after leaves of healthy trees have completely expanded. Virus-infected leaf petioles appear abnormally upright or angled perpendicular to branch. Cherry tree infected with *CLRV* and *prune dwarf virus* will lack terminal leaf growth on scaffolds. A closer inspection of leaves on these branches will reveal that the leaf veins appear abnormally raised and whitish in color. Enations (abnormally dark green areas running along the leaf midrib) will form on lower side of younger leaves on the infected tree. While these enations are good diagnostic characteristics, they do not show on all leaves on an infected tree. Cherry trees infected by *CLRV* and *prunus necrotic ringspot* are even uglier yet. These doubly infected trees show symptoms like shoot tip dieback early in the summer and loss of fruit-bearing wood. Trees infected with *CLRV* and *prunus necrotic ringspot* also reveal symptoms that resemble bacterial canker like excessive gumming and blighted branches.

How *CLRV* is transmitted is not understood, but researchers are working on it. *CLRV* belongs to a family of viruses known as nepoviruses. Many of these viruses are thought to be nematode transmitted or pollen transmitted. The virus is known to spread from an infected tree to nearby tree through root grafting. Within a cherry block, the virus spreads and radiates from an infected tree to nearby trees. There is no cure for a tree infected with *CLRV*. *CLRV* appears to quickly spread to adjacent cherry trees as well as to cherry orchards far removed from the known infections. Growers must remove the infected trees ASAP to prevent the spread of *CLRV*.

Most alarming is the wide distribution of individual trees infected with *CLRV* in the Yakima Valley and Columbia Basin. This virus has the ability to infect trees at significant distances from initial diseased tree. It is critical to the entire cherry industry that trees infected with *CLRV* be identified and destroyed ASAP! Growers are urged to scout their orchards closely for any cherry tree that begins to display abnormal or delayed growth habits and reduced productivity associated with poorly sized fruit, poorly colored fruit or delayed harvest. Mark or tag these suspect trees and ask your field consultant or extension agent to look at this tree for the symptoms associated with *CLRV*. Sample branches from these trees can be sent to the WSU ELISA Service Center in Prosser and screened for *CLRV* at a minimal charge. The best time to sample trees for cherry leaf roll virus is in the spring before the cherry flowers open up and/or at cherry harvest.

Keep in mind that *CLRV* will lead to the rapid decline and death of cherry trees. *CLRV* will radiate out from any infected tree in your block to adjacent trees. And finally, *CLRV* will spread from infected trees in your block and can infect cherry blocks far removed from your block. Our industry should be able to contain this lethal virus and perhaps eradicate it, **but only if cherry growers take this threat seriously and move quickly to identify and remove infected trees.**

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