

Canadian Dwarf Sour Cherry Update – 2014-17

The Canadian dwarf sour cherries are lovely shrubs with interesting bark, shiny green leaves, beautiful nectar-filled flowers for bees and really great fruit. But...the appearance of spotted wing drosophila fruit fly (SWD) has been devastating to the fruit production here at CREC.

Since 2013, SWD has infested the fruit as it starts to ripen. These cherries swell and become tender about three weeks before they are considered fully ripe. This is longer than other standard cherries like 'Montmorency' and 'North Star'. *(The picture (right) was taken July 3, 2017. The cherries were not fully ripe until after July 18th when they were a dark maroon color.)* 'Crimson Passion' holds up better to the pest because the fruits are firmer while 'Carmine Jewel' has softer flesh and becomes rotten quickly. Our tree cherry, 'Evans' aka 'Bali' has standard, tender fruit and spoils quickly as well. It has another disadvantage in that it ripens about one week after the shrub cherry harvest, when SWD numbers are at their maximum.



We have not been able to control SWD with our spray program. In 2016, first hail and then rainy conditions interfered with the efficacy of our spray program by increasing SWD interest in the damaged fruit and by both diluting insecticides on the plants and providing the warm, moist conditions loved by the flies. 2017 conditions were perfect for insecticide use and residual activity, yet the damage to the fruit was the same – terrible. After the 2018 season, 'C. Jewel' and 'C. Passion' will probably be removed. We planted 'Romeo' and 'Juliet' in 2015 and will continue to evaluate these two cultivars.

If there were no SWD I would still be bullish on cherries but it is very difficult to overcome both weather problems and insect damage. The production results summarized at the end of this report show that the weather, first, makes it difficult to count on a crop of cherries in North Dakota due to wind, hail and freezes. The addition of SWD requires insecticides applied at 3 to 5-day intervals for several weeks depending on the active ingredient used. *Whether at home or commercially, a netting exclusion system will be the only way to raise fruit that you feel good about eating.* The netting will also protect the crop from hail and birds.

2014: 'Carmine Jewel' production was much lower than the 30-pound-per-plant bumper crop produced in 2013. The estimated crop this July was seven pounds per plant. However, a very strong wind event and bird depredation caused almost the entire crop to be lost. 'Crimson Passion' flowered well again but produced almost no fruit for a second year in a row. We sprayed for SWD and saw little damage and little evidence of the pest this year. Two 'Crimson Passion' shrubs had branches with gummosis during spring pruning. The entire branch was cut

out; however, more resin was seen in fall. The infection was probably introduced by the large hail in 2011.

‘Evans’/‘Bali’ Cherry: There were blossoms but no fruit this year.

2015: Plants began blossoming May 1st and though they were done blossoming during the May 17-19 freeze, there was no fruit production.

‘Evans’/‘Bali’ Cherry: The ‘Evans’ trees had some fruit but it was both eaten by birds and infested with SWD larvae.

2016: The dwarf hardy cherry shrubs had an excellent crop in 2016, but harvest was limited by hail and SWD. ‘Carmine Jewel’ bloomed May 9-17 while ‘Crimson Passion’ began a few days earlier and persisted through the 17th. ‘Evans’ aka ‘Bali’ is about one week later and bloomed May 13-20. Mason bee activity was extremely high May 14-20. Cherries were ripe extremely early this year but unevenly ripe, with harvest occurring July 12 and 13. We feel this is due to the freeze May 14th.



Fruit was sprayed with insecticide to prevent SWD damage. It seemed as if the protective sprays worked, as little damage was detected in the dwarf hardy cherry fruit. Unfortunately, it seems as if timing was the biggest protectant. When ‘Evans’ cherry was ripe one week later, they were completely infested with SWD despite further sprays. This was also a period of heat, humidity and rain.

Hail on July 9th dropped or ruined what seemed like 70% of the near-ripe cherry crop. Students were employed to rake up the fruit and drive them away from the orchard. The remaining fruit had a lot of damage from bruising, cuts and drops. In the end, we harvested only 93 lbs of ‘Carmine Jewel’ and 32 lbs of ‘Crimson Passion’ that were usable (12 plants of each). ‘Evans’ cherries were harvested by several volunteers who tried to find a bit of usable fruit among the damage and insects.

‘Crimson Passion’ has always been less vigorous than ‘Carmine Jewel’. It suffers from ‘barren branches’ (*see right*), a condition in which reproductive buds from the previous year do not form new vegetative buds. Thus, no new fruit or leaves can form. ‘Crimson Passion’ starts to bloom a day or two earlier than ‘Carmine Jewel’ but never has near as much fruit. In addition, almost all the ‘Crimson Passion’ plants now have ‘gummosis’, a condition in which resin is pushed out of damaged areas to try to seal off insect, bacterial or fungal-damaged areas. This seems to have started on 2-3 plants, 1-2 years after hail in 2011. Now, most of the ‘C. Passion’ have gummy oozes and will probably be removed. This may have been spread through pruning, but transmission by root grafting or insects cannot be ruled out.



2017: Both ‘Carmine Jewel’ and ‘Crimson Passion’ had good crops this year. ‘Carmine Jewel’ produced an average of 25.5 pounds of fruit per plant, despite heavy pruning these past two years to thin the plants to an open state. ‘Crimson Passion’ produced 129 pounds of cherries, or about 4 pounds per plant. This is actually a good crop when compared to the past several years of little fruiting.

The past two years, the cherries were pruned in early July. In 2016, pruning time ran out while the plants were dormant and suddenly there was fungal spots on the inner leaves and green cherries during the humid weeks in early July. (*Probable cherry leaf spot, photo right*) Since we knew they would need to be sprayed for SWD anyway, they were thinned at this time. In 2017, the same pruning schedule was followed and seemed to work well. With the July thinning, there is not as much regrowth that then has to be removed the next spring. In reading about stone fruit pruning, it is recommended to prune after blossom or even after fruiting to reduce water-sprout re-growth. This seems to work well for the cherries.



Almost all the ‘Crimson Passion’ plants have ‘gummosis’ (*left*). They also have ‘barren branch’ areas and produce fruit sparsely. The plants will be removed after the 2018 season.

‘Carmine Jewel’ will also be removed because it draws in SWD.

‘Evans/Bali’ may be left. It is easy to net individual branches of this tree and the fruit project manager loves cherry pie!

(*Right: Note how the cherries grow thickly along long branches.*)



Harvest weights (lbs) of Canadian Dwarf Sour Cherry

	# Plants	2009	2010	2011	2012	2013	2014	2015	2016	2017
Carmine Jewel	12		37.4	34.1	137.6	359.4	1.3	0	93.1	306.4
Crimson Passion	11		7.7	2.7	94.7	3.2	2.4	0	32.2	129.3

2014 - apx 7lbs per shrub prior to: Field Day tasting, high winds, birds, SWD

2015 - freeze

2016 - hail and SWD loss 70% greater than harvest

2017 - SWD loss. CJ weight = only 'good' fruit. CP weight = 'good' + 'bad'