

Northern-Hardy Fruit Evaluation Project: SWD Thrives in Warm, Moist Conditions

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In 2019, the Northern Hardy Fruit Evaluation Project at the Carrington Research Extension Center brought fruit-growing information to over 950 people. People accessed information through tours, meetings, video-conference programs and personal phone calls. In 14 years, we have reached approximately 13,300 constituents. This year, we responded to calls from North Dakota, Minnesota, Montana, South Dakota, Illinois and Idaho.

Fall 2018 was very dry and warm with temperatures in the 70s and 80s through mid-September. Plants were drip-irrigated to prepare them for winter. The first week of October saw a day of rain followed by 2-inches of snow and temperatures as low as 22°F. It snowed again the following week with eastern areas of the state receiving nearly 20 inches. This was finally a 'test' winter with high temperatures averaging almost seven degrees below normal. At the end of January 2019, CREC recorded -35 and -40°F. One pear cultivar and one black currant variety were injured by winter conditions and were removed from the project. Spring was cool and deficient in moisture. In summer, rainfall began to increase and by late October, the orchard precipitation was 6.2 inches ahead of average.

After a slow-warming spring, the growing season was 4.0°F cooler than normal. Bloom and fruit development were slowed, however, spotted wing *Drosophila* (SWD) arrival was right on time. Warm, moist conditions in the middle part of the U.S. and North Dakota likely contributed to the onset of intense SWD fruit fly infestations. The three types of haskap and honeyberry we grow usually escape damage but this year, even the mid-season harvests were ruined. Most of the juneberry and all the cherry crops were lost despite pesticide applications. Early currant crops were damaged although later varieties were less bothered; there were fewer crops to inhabit, making hand-sprayed applications of pesticides more effective.

Notable events in the fruit orchard:

- Again, there was less bird depredation of early fruit but the reason was finally determined not to be drought, as surmised in 2018, but due to nesting Cooper's hawks.
- Older Canadian cherry shrubs were removed to decrease host fruit, but SWD was terrible this year. 'Juliet' cherry was ripe earlier than our previous early crop of 'Carmine Jewel' but was ruined before it was fully ripe.
- Mid- and late-season haskap harvest was hurried by SWD. Much of the later crop was picked in 'rescue' mode and was frozen but not weighed.
- Juneberry fruit was not ready for harvest until July 14. The crop was essentially lost by July 16 due to SWD. CREC students picked 56 pounds of a 400 to 500-pound crop. Volunteers and Field Day visitors probably brought the estimated harvest up to 250 pounds before the remainder was picked and destroyed.
- No irrigation was needed in 2019. The growing season was ended with plants in full leaf and apples not fully ripe when we received approximately 20-inches of snow October 10-12. Temperatures rebounded and melted the snow before freeze-up.

Northern Hardy Fruit Project - Yearly Production Records										
		No. of plants	2016		2017		2018		2019	
			Date	pounds	Date	pounds	Date	pounds	Date	pounds
Aronia	Nero	4	9/3-6	54.5	9/12-13	12.6	9/10-11	105.8	17-Sep	19.4
	Raintree Seedling	4	2-Sep	52.1	x	x	12-Sep	70.3	18-Sep	11.8
	Raintree Select	4	6-Sep	60.0	9/13-19	7.4	8/31-9/5	94.2	13-Sep	23.0
	Viking	4	9/2-7	63.2	12-Sep	4.5	8/22-9/5	105.7	16-Sep	27.8
	McKenzie	4	7-Sep	42.0	11-Sep	5.1	8/28-30	78.0	16-Sep	37.0
	Galicjanka	4	6-Sep	3.6	5-Sep	1.0	27-Aug	29.0	13-Sep	23.9
				275.4		30.6		483.0		142.9
					<i>Crop aborted</i>		<i>Overcropped, fruit poor</i>		<i>Hail, SWD loss</i>	
Hardy Cherries	SK Carmine Jewel	12	13-Jul	93.1	19-Jul	306.4	12-Jul	loss	<i>Removed</i>	x
	SK Crimson Passion	12	13-Jul	32.2	20-Jul	129.3	13-Jul	loss	<i>Removed</i>	x
				125.3		435.7		x		x
			<i>hail, SWD 70% loss</i>				<i>All lost to SWD</i>		<i>CP: gummosis in all</i>	
	SK Romeo	3							31-Jul	11.5
	SK Not Romeo	1							19-Jul	8.2
	SK Juliet	5							17-Jul	46.2
										65.9
									<i>All lost to SWD</i>	
	Evans / Bali	2	19-Jul	17.3	8/1-2	loss	7/20	loss	30-Jul	53.5
			<i>hail, SWD 70% loss</i>		<i>SWD infested (all)</i>		<i>SWD infested (all)</i>		<i>Heavy pruning + SWD loss</i>	
Black Currant	<i>Black Down</i>	16	7/22-28	36.7	x	x	x	x	<i>Removed</i>	x
Old	<i>Titania</i>	15	25-Jul	20.1	x	x	18-Jul	2.6	<i>Removed</i>	x
Variety Trial	<i>Whistler</i>	3	7/27-28	53.0	x	x	7/31	6.3	19-Aug	18.1
				127.3		0.0		8.9		18.1
			<i>hail, SWD ≥ 50% loss</i>		<i>Pruned out bearing canes</i>		<i>Recovery year</i>			
Black Currant	<i>Blackcomb</i>	15	1-Aug	6.3	31-Jul	67.2	7-Aug	60.9	14-Aug	61.7
New	<i>Cheakamus</i>	15	28-Jul	6.7	28-Jul	79.7	31-Jul	79.8	7-Aug	63.9
Variety Trial	<i>Stikine</i>	15	1-Aug	0.1	26-Jul	115.4	7/18-24	52.2	7/31-8/5	58.1
	<i>Tahsis</i>	15	28-Jul	2.8	26-Jul	77.6	26-Jul	83.5	7/31-8/6	76.9
	<i>Tiben</i>	15	1-Aug	3.8	8-Aug	88.0	6-Aug	82.2	16-Aug	79.2
	<i>Tofino</i>	14	10-Aug	3.0	8/1-4	45.9	8-Aug	14.3	Removed	x
	<i>Nechako - 2 ft space</i>	7	15-Aug	2.5	11-Aug	21.5	9-Aug	12.7	20-Aug	14.4
	<i>Nechako - 3 ft space</i>	7	15-Aug	3.5	11-Aug	26.6	9-Aug	18.6	20-Aug	25.4
				28.7		521.9		404.2		379.6

Northern Hardy Fruit Project - Yearly Production Records											
		No. of plants	2016		2017		2018		2019		
			Date	pounds	Date	pounds	Date	pounds	Date	pounds	
Black Currant	Ben Lomand	4	26-Jul	8.3	x	x	25-Jul	4.9	30-Jul	7.2	
	Blackcomb	4	26-Jul	21.4	x	x	1-Aug	17.6	15-Aug	38.3	
	Champion	4	26-Jul	6.7	x	x	25-Jul	11.5	30-Jul	9.6	
	Minaj Smyriou	4	26-Jul	3.2	x	x	18-Jul	5.5	x	SWD loss	
				39.6		0.0		39.5		55.1	
			<i>hail, SWD ≥ 50% loss</i>		<i>Pruned out bearing canes</i>		<i>Recovery year</i>		<i>SWD losses</i>		
Red Currant	Jhonkheer Van Tets	4	21-Jul	42.9	21-Jul	46.1	25-Jul	3.2	24-Jul	39.5	
	Red Lake	4	x	x	21-Jul	18.4	removed	removed			
	Redstart	4	x	x	x	x	SWD	x	Removed	x	
	Rosetta	4	26-Jul	20.9	3-Aug	70.5	SWD	x	2-Aug	37.8	
	Rovada	4	27-Jul	52.3	31-Jul	83.6	7/25-8/1	12.4	1-Aug	56.3	
				116.1		218.6		15.6		133.4	
			<i>SWD loss</i>				<i>Pruned for Borer 2018</i>		<i>SWD losses</i>		
White Currant	Blanka	4	22-Jul	15.0	x	x	x	x	x	x	
	Swedish White	4	21-Jul	20.5	x	x	x	x	x	x	
				35.5		0.0		0.0		0.0	
			<i>SWD loss</i>		<i>Removed plants 2017</i>		<i>Removed plants 2017</i>		<i>Removed plants 2017</i>		
Ore. Honeyberry	22-37	2	1-Jul	5.8	<i>did not pick</i>	x	6/26-28	5.9	12-Jul	NA	
	41-100	1	30-Jun	3.0	<i>did not pick</i>	x	7-Jul	x	12-Jul	NA	
	43-87	2	30-Jun	1.2	<i>did not pick</i>	x	6/22-28	7.9	12-Jul	NA	
	43-97	2	5-Jul	3.6	<i>did not pick</i>	x	28-Jun	x	12-Jul	NA	
	45-57	1	5-Jul	1.2	<i>did not pick</i>	x	28-Jun	4.1	12-Jul	NA	
	85-26	2	5-Jul	8.8	<i>did not pick</i>	x	7/2-5	3.2	12-Jul	NA	
	20-04	3	30-Jun	3.8	7-Jul	12.8	26-Jun	3.2	<i>Fruit fell early</i>	x	
	21-20	3	6-Jul	1.9	12-Jul	4.3	2-Jul	5.9	12-Jul	NA	
	22-14	3	6-Jul	2.8	7-Jul	8.2	28-Jun	6.5	10-Jul	4.8	
	22-26	3	6-Jul	3.4	7-Jul	12.0	26-Jun	8.9	12-Jul	NA	
	41-75	3	6-Jul	3.7	7/4-6	15.7	6/27-7/2	15.8	8-Jul	10.3	
	44-19	3	6-Jul	2.2	12-Jul	9.4	2-Jul	7.1	12-Jul	NA	
	57-49	3	6-Jul	4.6	11-Jul	13.0	2-Jul	10.1	10-Jul	21.8	
	88-92	3	30-Jun	2.0	4-Jul	6.3	27-Jun	6.2	8-Jul	5.8	
	88-102	2	30-Jun	0.9	4-Jul	5.8	26-Jun	4.7	5-Jul	12.9	
	108-23	3	30-Jun	4.8	7/6-7	17.0	26-Jun	8.9	5-Jul	18.0	
	131-08	3	6-Jul	2.8	12-Jul	10.8	5-Jul	8.7	12-Jul	NA	
	142-30	3	6-Jul	1.9	10-Jul	6.8	28-Jun	5.7	10-Jul	9.5	
78-89	2			7-Jul	0.8	5-Jul	3.5	10-Jul	4.7		
				58.4		122.9		116.3		87.8	
			<i>Excellent Bbee popl.</i>						<i>NA: quick pick, SWD</i>		
Rus. Honeyberry	Berry Blue	4	21-Jun	12.4	28-Jun	23.6	<i>did not pick</i>	x	<i>did not pick</i>	x	
	Blue Belle	4	13-Jun	10.1	19-Jun	21.8	<i>did not pick</i>	x	<i>did not pick</i>	x	
	Kamchatka	4	15-Jun	9.2	<i>did not pick</i>	x	<i>did not pick</i>	x	<i>did not pick</i>	x	
				39.5		45.4		0.0		0.0	
			<i>Excellent Bbee popl.</i>						<i>Left for birds</i>		
Haskaps - Canadian	Borealis	2	30-Jun	0.7	26-Jun	9.6	22-Jun	0.2	<i>did not pick</i>	x	
	Tundra	3	27-Jun	2.8	27-Jun	17.7	21-Jun	4.8	<i>did not pick</i>	x	
	Indigo Gem (9-15)	5	22-Jun	12.4	27-Jun	20.9	21-Jun	3.6	<i>did not pick</i>	x	
	Indigo Treat (9-91)	2	27-Jun	0.5	29-Jun	6.9	21-Jun	3.7	<i>did not pick</i>	x	
	Aurora	1					2-Jul	0.3	<i>did not pick</i>	x	
				16.4		55.1		12.6		0.0	
			<i>Reduced plant numbers</i>		<i>Excellent Bbee popl.</i>				<i>Left for birds</i>		
Juneberry	Honeywood	20	7/9-12	144.6	7/10-11	166.2	7/10	68.3	15-Jul	apx. 14.0	
	Variety Trial	20	7/6-7	174.3	7/5-7	133.4	7/5-9	60.8	15-Jul	apx. 14.0	
	Martin	20	7/5-7	131.4	7/5-6	101.0	7/5-9	68.6	15-Jul	apx. 14.0	
	Smoky	20	7/8-12	147.3	7/13-14	154.1	7/11-12	115.9	x		
	Thiessen	20	7/5-8	164.9	7/5-6	142.2	7/6-9	60.0	15-Jul	apx. 14.0	
					762.5		696.9		373.6		Est 4-500 lbs
			<i>Some SWD after 7/8</i>				<i>Only 2 of 4 rows picked</i>		<i>SWD b4 Field Day. Lost</i>		

The Project was planted in 2007, except Juneberries 2006.