Black Currant Update 2014-17: Original Planting

The original black currant trial was planted in 2007. It has been a great learning resource! Our conclusion after 11 years is that black currant production in North Dakota is heavily influenced by spring weather and by the choice of cultivars. But production can be quite successful.

Black currants bloom quite early and the flowers can be affected by a freeze (2012 and 2015) or cool misty conditions during bloom when bees or other pollinators won't fly (2010). Native bees, such as mason bees, don't care for currants although many types of flies (bee-mimic fly, left) seem to like them and create quite a hum as you walk through the rows. Honey bees are good currant pollinators; however, commercial, traveling honey bees may not be in North Dakota when this crop is blooming.

In 2007-8 we planted 11 cultivars of black currant. Of these, 'Titania' and 'Minaj Smyriou' have had the most consistent, resilient production (6-yr ave: 'Titania': 4.7lbs/plant, 'Minaj Smyriou': 4.0 lbs/plant). Of the 11, there are two we would not recommend planting: 'Ben Sarek', which has great production but very sour berries that sunburn, and 'Consort', which was bitter.

There has been no, or poor production the last three years. In 2015, the entire crop was lost due to one month of early warming followed by three freezing days and snow in April, hail July 4th and a series of day-long windstorms. In 2016, over half the crop was lost to hail and then the bruised, fallen and rotting berries attracted SWD fruit flies which ruined a lot of the fruit that remained. In 2017, a decision was made to cut out and burn all of the bearing canes to reduce the cane borer larvae that would infect 2017-18 plants. This pest buildup was my fault for not recognizing that the symptoms I saw were not from prolonged damage after winter injury but were from cane borers making the older canes weak.

Below are summaries of the years 2014-17:

2014: 'Hilltop Baldwin' was badly affected by the 2012 spring freeze and had little fruit in 2013. Winter was quite cold this year and again it had a very small crop. There was still evidence of winter-damaged branches. This variety is a good candidate for removal due to its poor hardiness and evidence of plant variability, ie: there appears to be two types of plants as judged by growth habit and there are fruit ripening differences. 'Titania' and 'Minaj Smyriou' had good production again and are recommended for North Dakota. There was no powdery mildew across the crop and, for the first time, no white pine blister rust. The new varieties 'Blackcomb' and 'Whistler' had a bigger crop and did not show the 'sunburning' of the berries that was seen in 2013. They are said to be sweeter than 'Titania', but they are much more tart here.

2015: 'Hilltop Baldwin' still had some winter-damaged branches in 2015. The bloom period began earlier than any other year with temperatures in the 60s from April 1-May 8th. Blooming took place in the period of April 27-May 18th; however, the cool, wet period of May 6-19 killed

the blossoms and developing fruit and prevented any bee or fly activity. With further insult, damaging hail occurred July 4th and there were 12 days with winds over 30 mph.

2016: What I have perceived as continuing winter damage the past few years is most likely currant borer damage; the shoots that were bored are slow and weak. Undoubtedly, there was winter damage the past several years, which appears similar, and that led me to not remove some of the infested canes which increased the level of pest. In May 2016, I cut out as many 'slow' canes as I could and burned them. It will take a few years of vigilance to reduce the borers.

The original trial established in 2007 will be decreased in 2017. 'Hilltop Baldwin' is truly affected by some winter stressors. Also, not all the plants are the same! Some have a different growth habit and ripening is a few days different. Production has been poor. 'Swedish Black' has an early, mild and sweet fruit but the growth habit is unacceptable. Almost all the plants we have grow 'wiggly' and with downward direction. No matter the pruning each spring, the canes grow quite low and make picking difficult. I observed this variety at the Plant Repository in Corvallis, Ore., where it grew upright. Two or three of our plants grow with a better habit than others. This variety would still be nice for a family that enjoys mild, fresh currants.

Hail dropped approximately half of the currant fruit July 9th. It was impossible to pick up the fruit as we struggled to continue harvesting Juneberries to keep ahead of SWD, and it laid on the ground. Despite several passes of pyrethroid insecticides, SWD were thick within all the currant plants and were not well controlled.

2017: In the original (2007) black currant trial, all canes older than 1 year were removed in May and burned, so there was no production in 2017. For approximately 4-5 years, the fruit project manager has noticed unusual, poor growth in the black currants. It took a few years to determine that the condition is a result of cane injury from currant borers. It was masked by severe cold injury which preceded this infestation and was thought to be lingering. In 2012, a very warm March was followed by three days of freezing weather April 9-11 when lows fell to 24, 16 and 19°F, respectively. In the variety trial that year, 'Black Down,' 'Swedish Black' and 'Hilltop Baldwin' were heavily damaged.

In the years since, there have been dead branches and branches that appear to have lots of fruit and very small foliage. This has been especially apparent in 'Hilltop Baldwin,' the variety most affected by the freeze. Currant borers had been suspected but sometimes during pruning, when a branch appeared to be slow and sickly, borer damage could not be found. This was frustrating. In 2017, the fruit project manager made the decision to remove all caners older than 1 year to remove as much of the infestation as possible. The removed canes were burned within 1 week.

Photo: Graham Calow
Granitethorpe Allotments, Sapcote
06 July 2016
From the website: www.naturespot.org.uk

The clear-winged moth whose larvae infest the pith of currant canes (right).

The currant cane borer is the larval stage of the 'clear-winged moth,' which lays its eggs in the leaf axils of established canes in late June to early July (assumed in North Dakota). The larvae bore into the center of the shoot and feed there, overwintering in the pith. The following spring, affected shoots often leaf out late, are sickly, and may die. The moths emerge as adults in early summer.

It is difficult to determine the proper time to spray and also difficult to get the insecticide in where it is needed. At about the time applications need to be applied, new lush cane growth is filling the center of the plants, making spray penetration difficult.

The best and most common recommendation to control currant borer in your orchard is to remove and destroy dying or sickly branches during the growing season. Follow recommended pruning practices and do not let shoots become too old. Keep plants growing vigorously.

The severe pruning of the old black currant trial removed much of the source of currant borer in the orchard. However, the red currants and new trial also have borers. The red currants tend to grow as one plant and not with multiple shoots renewing from below ground. It is not as easy to prune them and maintain production. Diligent pruning will be carried out in 2018.

Currant borer larva

Slow budding on left from borer damage to pith.

2015: Flowers and young fruit killed or not fertilized during cool, wet weather May 6-19.

Currant borer exit hole

"All buds, no leaves"

Summary: Three out of the four rows of the 2007 black currant variety trial will be removed in 2018 to make more room for haskap plantings in fall 2018. There is a new trial, planted in 2014, that takes its place.

The varieties that performed best are 'Titania' and 'Minaj Smyriou'. These two have the most fruit and most consistent crops. 'Titania' is extremely vigorous and requires more pruning effort each spring. The fruit has balanced sweet-tart flavor and is neither too mild nor too 'currant-y'. (All European black currants are resinous ('piney') and the plants have an 'herbaceous heady aroma' (think cat pee!). Both these varieties are resistant to white pine blister rust.

- 'Titania' has two faults to consider: 1. The canes are not stiff enough and bend toward the ground as the fruit ripens. 2. The fruit nearest the ground ripens first and will start to fall before the upper fruit is ripe – so pick twice.
- 'Minaj Smyriou' fresh fruit is drier – it's not as juicy but most currants are processed and are not eaten fresh.

'Black Down' produces smaller crops but has nice fruit. Our plants were obtained from two sources and they are different cultivars. Both are sweet but the leaves are very different and they ripen differently. The 'correct' plants were bought from Whitman Farms, Ore.; this was checked by observing the mother plants at the USDA Plant Repository in Corvallis, Ore. Over the years, 'Black Down' averaged 3 pounds of fruit per plant, 1-1.5 pounds less than 'Titania' and 'Minaj Smyriou'.

Currants are considered heavy feeders. CREC has 3.5-4% organic matter in our soils which can supply, on average, 70-80 pounds of Nitrogen per acre. Fertilizing recommendations for currants are 0.4-0.46 oz of N per plant, applied once in early spring and once after bloom. I can never get the early application applied because I am still pruning the orchard and because the water systems are not turned on yet. In late May or early June, I mix liquid 8-30-2 and 28-0-0 and apply 0.31oz N, 0.265oz P and 0.018oz K to each plant via the soil. The plants appear to grow well: not excessively and not poorly. Earlier, I used to foliar feed the plants with Agro-K products, but the soil application is much easier.

One thing that should influence production positively is irrigation. In 2014, we began limited irrigation of the original currant trial. We use a 1,200-gallon water tank with gravity feed to two hi-flow drip tapes on each row with emitter slits every 8 inches. Applying 400 gallons of water over 10 hours gives each plant access to 7.2 gallons of water. We began irrigating the currants after harvest in 2014. Unfortunately, we have not been able to evaluate the effects since we have not had a good crop in the years since irrigation began (freeze, hail, pest control).

Currants are one of the most underutilized fruit crops in the US. They have great flavor, excellent nutrient profiles and anthocyanins (purple compounds). They make delicious jam, wine and juice. Its downfall is that the greater public, processors and retailers don't recognize this fruit. A grower in North Dakota has a lot of education and marketing work ahead of them.

Northern Hardy Fruit Project - Yearly Production Records

		No. of plants	2009		2010		2011		2012		2013		2014		2015		2016		2017	
			Date	pounds	Date	pounds	Date	pounds	Date	pounds	Date	pounds	Date	pounds	Date	pounds	Date	pounds	Date	pounds
Black Currant	*Ben Sarek*	12	10-Aug	66.2	3-Aug	24.6	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Variety Trial	*Black Down*	16	27-Jul	43.2	29-Jul	29.5	15-Aug	49.4	24-Jul	18.7	22-Aug	64.6	11-Aug	74.2	x	x	7/22-28	36.7	x	x
	Hilltop Baldwin	16	30-Jul	20.2	29-Jul	11.3	18-Aug	42.4	24-Jul	2.9	13-Aug	11.1	8-Aug	15.9	x	x	25-Jul	17.5	*Removed*	x
	Swedish Black	11	27-Jul	21.8	2-Aug	2.7	8/16-22	25.2	24-Jul	0.5	9-Aug	30.9	29-Jul	41.0	x	x	15-Jul	x	*Removed*	x
	Titania	15	30-Jul	65.9	2-Aug	10.4	8/23-25	45.7	24-Jul	58.7	19-Aug	131.9	7-Aug	107.9	x	x	25-Jul	20.1	x	x
	Whistler	12		x		x		x		x	23-Aug	26.7	29-Jul	59.9	x	x	7/27-28	53.0	x	x
				217.2		**78.5**		**162.7**		**80.7**		**265.2**		**298.9**		**0.0**		**127.3**		**0.0**
Whistler replaced Ben Sarek 2011															*Freeze, hail, wind*		*hail, SWD ≥ 50% loss*		*Cut out bearing canes*	
Black Currant	Ben Lomand	4	10-Aug	0.9	2-Aug	4.9	16-Aug	5.9	7/23-25	13.0	14-Aug	6.6	1-Aug	11.9	x	x	26-Jul	8.3	x	x
Demonstration	Blackcomb	4	x	x	x	x	x	x	x	x	22-Aug	4.1	4-Aug	13.3	x	x	26-Jul	21.4	x	x
	Champion	4	29-Jul	5.2	2-Aug	4.2	16-Aug	8.6	23-Jul	3.6	12-Aug	12.9	11-Aug	5.6	x	x	26-Jul	6.7	x	x
	Consort	4	4-Aug	16.6	2-Aug	5.2	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Minaj Smyriou	4	23-Jul	0.5	29-Jul	4.4	16-Aug	8.7	24-Jul	18.3	8-Aug	30.4	7/31-8/1	34.7	x	x	26-Jul	3.2	x	x
				23.2		**18.6**		**23.2**		**35.0**		**54.0**		**65.5**		**0.0**		**39.6**		**0.0**
Blackcomb replaced Consort 2011															*Freeze, hail, wind*		*hail, SWD ≥ 50% loss*		*Cut out bearing canes*