

Aronia Update 2015-17

Aronia is one of the most important new berry crops to evolve in the United States in several generations. In eight short years, registered aronia production increased from 65 acres in 2010 to 1819 acres in 2017, an increase of 2,698%. (FSA, USDA; Crop Acreage Data) In North Dakota, there are about 70 acres registered, with 90 acres known to be planted; or, about 4% of US production. In the US, Iowa has the greatest acreage at about 1,055 acres. The numbers of growers in Nebraska, Minnesota and Wisconsin are increasing as are acres in eastern states. In our area, growers can expect to harvest three pounds of fruit per plant in the third year and up to 15 pounds per plant after the crop is 5 years old. (Based on dryland production at CREC and regional reports.)

Aronia has been grown as a commercial berry crop in most Eastern European countries since the 1950s and in Russia since the 1940s. Since 2010, European aronia acreage has remained constant, mostly due to volatility in prices. With nearly 15,000 acres, Poland still holds 90% of world production¹.

The aronia that is grown for fruit in Europe and the US should be described as *Aronia mitschurinii* and not *A. melanocarpa*. *Aronia melanocarpa* is the wild species that grows in North America; it was used in the breeding of *A. mitschurinii* in Russia. Therefore, it is not really correct to say that Aronia is “a native North American fruit.”²

Though some growers claim their aronia cultivars are superior to others, there is very little genetic diversity among cultivated aronia. In fact, the three most popular varieties, ‘Nero’, ‘Viking’ and ‘Galicjanka’, are nearly identical when compared through genetic methods.³ At CREC, the only differences of note are:

- ‘McKenzie,’ which grows thicker from the crown with a greater number of branches.
- ‘Galicjanka,’ which is growing well but has not produced a crop since planting in 2013.

General: Spotted Wing Drosophila (SWD) numbers can increase well into August but we haven’t had any noticeable infestations in aronia at the CREC orchard. It’s generally very dry during the ripening period, which doesn’t favor SWD. Sometimes there is a white worm in a fruit, which might be a cherry fruit worm.

2015: Daytime temperatures averaged 60°F, from April 1-May 8th. The weather cooled following this and on May 17-19, low temperatures were 30, 29 and 27°F. We received 2 inches of rain and 2 inches of snow in this period. The aronia blossoms opened May 20th, one day after the freeze. The blossoms looked fine, but perhaps had internal damage since, on some clusters, 50-75% of the flowers failed to develop. Harvest from each group of four plants was 17-25 pounds, for a total of 85.5 pounds of fruit. This was a 27% reduction from 2014 and a 64% reduction from 2013 production. This is the lowest production since harvest began in



2009. There were almost no pear slug sawfly larvae this year but we sprayed for high numbers of lace bugs.

2016: Aronia bloomed for a five-day period in the fourth week of May and were mostly complete by the 26th. Production was excellent this year with 275 lbs harvested. This is 40 pounds more than the previous high in 2013. This year, we had almost no insect damage to the leaves by either pear slug sawflies or lace bugs. No insecticides were applied. No SWD was detected but a few cherry fruit worms were found in the fruit at harvest. Véraison was recorded August 12th as fruit had turned red-black and began to swell. Harvest did not occur until September 2-9 when sugar levels and taste agreed.



Véraison Aug 12th

2017: The prime aronia bloom period was from May 24 to June 1, following a 10-day cool spell. We expected a smaller crop after last year's record harvest. Rainfall was low, as described on page 1, but had not seemed to affect the aronia crop in the past. On August 13-15, as the berries were just starting to color, we had 2 inches of rain and in the next few days, the plants began to shed immature berries.



Small fruit, Aug 16th

This fruit drop continued for another week or two until very few berries were left. The remaining berries never attained full size or

properly ripe flavor; they were very astringent but sweeter than normal because they were left to ripen longer. The fruit was inedible and was harvested for measurement purposes only. The 'Seedling' aronia had so few berries that they were not harvested at all.

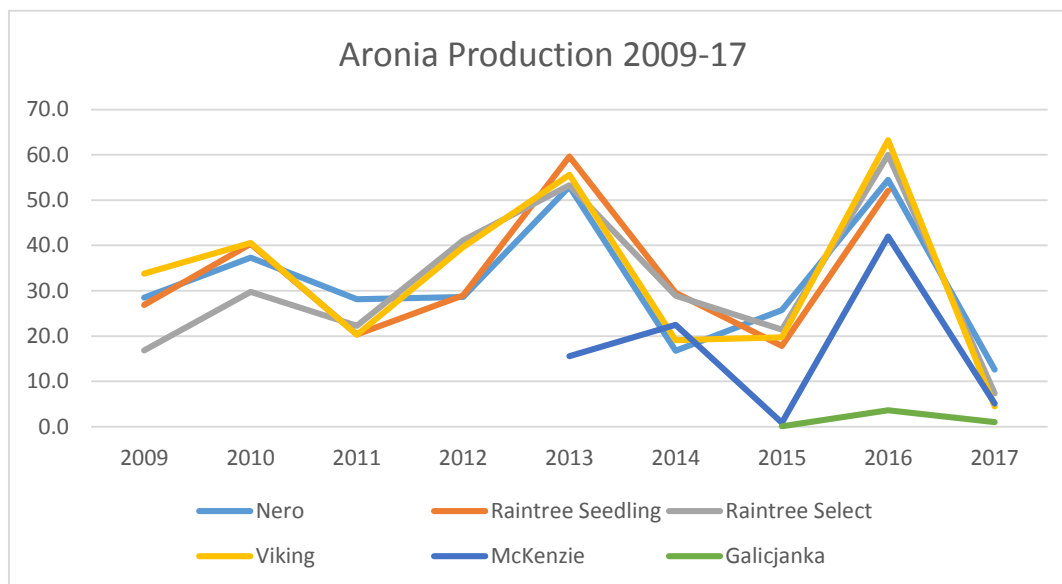
A plant physiologist that I consulted thought that the plants were too stressed by the drought and produced 'stress hormones' that caused the fruit to abort in order to save the plants themselves. I am still surprised at this result due to our past history of very dry periods and the very good production offered by the black currant plants just a few weeks before véraison.

There were no pear slug sawflies in 2018 but there were lace bugs on the leaf undersides. These were controlled with one application of spinosad.

1. www.freshplaza.com/article/116131/Poland-One-of-the-largest-producers-of-berrirs-in-the-world
2. Leonard P, Brand M, Connolly B, Obae S. 2013. Investigation of the Origin of Aronia mitschurinii using Amplified Fragment Length Polymorphism Analysis. HORTSCIENCE 48(5):520–524. 2013.
3. Smolik M, Ochmian I, Smolik B (2011). RAPD and ISSR methods used for fingerprinting selected, closely related cultivars of Aronia melanocarpa. Not Bot Horti Agrobo 39(2):276-28

Aronia Production (lbs) at CREC, 4 plants each

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Nero	28.5	37.3	28.1	28.6	53.0	16.8	25.7	54.5	12.6
Raintree Seedling	26.9	40.3	20.4	29.0	59.6	29.6	17.8	52.1	--
Raintree Select	16.9	29.8	22.3	41.2	53.3	28.9	21.4	60.0	7.4
Viking	33.8	40.6	20.3	39.6	55.6	19.1	19.7	63.2	4.5
McKenzie					15.6	22.5	0.9	42.0	5.1
Galicjanka							0.1	3.6	1.0
	106.1	148.0	91.1	138.4	237.1	116.9	85.6	275.4	30.6



Average Berry Size, Sugar Content, pH and Acidity of Frozen Aronia Fruit

	Nero	Raintree Seedlings	Raintree Select	Viking	McKenzie	Galicjanka
Ave. Wt of 10 berries (g)	9.82	9.92	9.43	9.93	11.70	10.20
Brix	16.3	16.3	16.2	15.8	15.4	15.9
pH	3.26	3.30	3.25	3.28	3.30	3.38
%Acidity	1.47	1.42	1.53	1.45	1.28	1.23

The cultivars Nero, Viking, Raintree Select and Raintree Seedling were received as older plants.

Averages from 2011-16. Does not include 2009-10 = juvenile. 2017 = drought stress

Average of 2014-16. Does not include 2012-13 = juvenile years; 2017 = drought stress

2016 juvenile results only. 2017 = drought stress

* The two juvenile years are excluded because the fruit is bigger and sweeter than it will be again.

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