

West Coast Elderberry Growers Workshop #1 Nov 16, 2020

Sambucus Canadensis (American Elderberry)

Varietal Selection

Tested by Carmel Berry Company in California.

Adams-not recommended, except perhaps for pollination?

Bob Gordon-highly recommended

Ranch-recommended with reservations (pollination issues(?) when not planted with other varieties)

Wyldeewood-not recommended, except perhaps for pollination?

Tested by Apothebox in Oregon.

Ranch, Adams II, Wyldeewood, Bob Gordon, Scotia, York and Johns.

Late season fruiting varieties not performing as well initially with a shorter growing season in my trials. York, Johns, Scotia for example. Ranch, an early performer seems to be underwhelming so far. The orchard is young, so it really is too early to tell. Trialing varieties of Nigras, canadensis and cerulea for pruning, fertilization, productivity. Bringing in an additional 2 dozen new varieties of Sambucus nigra ssp (including canadensis) this year for continued trials.

Tested by Elderberry Grove in British Columbia.

Ranch, Bob Gordon, York, Adams, Victoria, Kent, Coomer, Berry Hill. Also planted: Marge and Haschburg (Sambucus Nigra). Positive attributes found in each of these varieties. Shorter growing season means later fruiting varieties a challenge. Investigating pruning methods to address this.

Soil test recommendations:

pH 5.5-6.5.

soil organic matter 3-5% (they love organic matter so this is important)

phosphorus 40-80lb/acre=med

potassium 110-220lb/acre=med

magnesium 200-250lb/acre=med

calcium usually is fine with native calcium levels (although in my test plot at my house I have had to add calcium).

Boron, Sulphur, and Manganese should all be within normal range (not low).

Planting recommendations:

After soil has been amended,

1. Early spring planting after last frost is generally recommended but plenty have had success planting outside this time.
2. Rows should be 10 ft or 12 ft on center. Can be 8 ft but would only be able to fit a wheelbarrow through, not a small tractor and might need to stake.

3. In each row, plant cuttings 18in-2ft apart. Angled cut side down. Make sure that at least 1 node is ~2 inches below surface or more if longer.
4. Mulch around each plant. Straw,, or wood chips. One suggestion in MO where hay is cheap is to roll out one whole roll of hay and then dig out right where you're going to plant the elder. Plastic can be used, although discouraged, or 20yr landscape cloth if possible.

Propagation:

Purchasing cuttings of Sambucus Canadensis from a licensed nursery is highly recommended so they'll be certified disease free and of the named varietal.

Recommended sources:

River Hills Harvest

Blue Moon Native Plant Nursery (Central California only, no shipping)

Perfect Circle Farm

Burnt Ridge Nursery

Nourse Farms (S. Nigra only)

Elderberry Grove (Jed's farm--Canada only)

- Make your own cuttings 2nd season. 2-3 nodes, make angled cut on the bottom end.
- Plant with at least 1 node under soil either in pots or directly into amended soil
- Keep soil moist until leaves have sprouted and is established.

Startup Costs approx/acre:

Costs/cutting: Around \$2-\$2.50/cutting

Cuttings needed per acre (approx): 1800

Irrigation, Fertilizer, land, and labor costs will vary by region.

Financial Modeling Tools--Customizable to help you figure out your costs:

University of Missouri:

<http://www.centerforagroforestry.org/profit/elderberryfinance.php>

University of Vermont:

<https://www.uvm.edu/sites/default/files/media/ElderberryGuideComplete.pdf> (p. 66 in the guide has excellent numbers for capital expenditures).

Financial Returns on Elderberries:

Current selling prices through Midwest Elderberry Coop & others in Midwest to give you an idea:

Non-certified organic berries: \$3-\$4/lb

Certified organic: \$4.50-\$6.00/lb.

Approximate Harvest Yield

Year 1: No harvest

Year 2: Approx 800

Year 3: approx 2500

Year 4 +: approx 3500 (higher in Midwest and lower in harsher climates like Eastern Canada).

Helpful Growing Guides Sambucus *Canadensis* (American):

None of these focus specifically on West Coast Growing but they have excellent information.

University of Kentucky:

<https://www.uky.edu/ccd/sites/www.uky.edu.ccd/files/elderberry.pdf>

University of Vermont (especially useful for Northern regions):

<https://www.uvm.edu/extension/sustainableagriculture/elderberry-production-vermont>

University of Missouri:

<https://extension.missouri.edu/publications/af1017>

Sambucus Caerulea (Blue Elderberry)

Varietal selection:

There are no developed and tested cultivars for Caerulea yet. All stock available at nurseries is propagated from wild stock, and quality from wild stock is ALL OVER the place! You're going to want to ask your provider a lot of questions--if they are using seeds, what are the area's trees like?

Here's the deal with Caerulea: Some trees have FANTASTIC pink/purple juice when ripe. Other trees, sometimes right next door, look ripe but contain only GREEN GOO inside! So a good nursery is going to do their best to select seeds (or cuttings if you're lucky) from trees with good juice inside, as this is as far as the science has come on this. More on propagation below.

Soil test recommendations:

- **UC Researchers:** Blue elderberry thrives in full sun, part sun, and full shade (versatile!). It prefers soils with moderate to good drainage and pH 6-7, but will tolerate many soil types and conditions. It can tolerate standing water during winter dormancy
- **Apothebox recommendation:** Thrives in a wide variety of climates and soils- drought resistant, high rocky climate, desert conditions, riparian, forest. Appears possibly less tolerant of wet feet than Canadensis.
Test soil for Rust, Verticillium Wilt both an issue in Willamette Valley, so recommend testing for this. For my trial, no soil inputs other than mulching for weed suppression and retention of moisture in soil.
- **Carmel Berry Co experience:** To prevent the "green goo" type of berries perhaps slightly warmer inland conditions MIGHT be better? Flowers are excellent all the way down to the coast.

Planting recommendations:

UC Davis (California Central Valley) ucanr.edu/sites/elderberry

1. Early spring planting generally recommended but perhaps before winter rains would be more appropriate in CA with mild winters.
2. Doing a deep tillage rip of 3 feet
3. 10 ft spacing makes dense hedge, depends on if you want to harvest as hedge or around individual trees. Shades out weeds well.
4. Placing tubes around the small plants to protect, removal of tubes within a month or two
5. Irrigation 1x/wk, emitters might need to be moved back as plant grows.

Apothebox (Willamette Valley, OR)

1. **Spacing** layout based on S. Nigra recommendations for center spacing and in-row spacing: 18 ft. on center row spacing, and 12 ft. between plants in the row. Much larger than the 2-4 ft planting X 12 ft spacing on Canadensis.
2. **Staking:** 2 ¼ X 8 ft tree stake, pressure treated (see link below for PSU research regarding chemical transfer from treated wood to soil, to fruit). Set 2 ft into soil. Purpose of stake is to build central leader trunk strength and will eventually be rotted out and removed, no longer needed as the “trunk” grows to support the branches. Similar to what we see in many older wild cerulea, less shrub like growth, fewer suckering, and more tree form.
3. **No soil amendments.** Early spring planting.
4. **No irrigation** (Willamette Valley has good annual rainfall). Planning on irrigating this year as soon as well installed.
5. **Pruning:** Single leader pruning like a nigra canes that have flowered/fruited that year. Central Leader, selective pruning post-harvest of fruiting branches / canes. Thinning to 4-5 emerging canes to form the flowering canopy for the next season. Purpose of such selective pruning and central leader is to control the growth habitat for cerulea which can easily reach 20-25 ft in height, making harvesting difficult. More detailed info on pruning in Dec workshop).

Start up costs approx/acre

Apothebox:

Tree stakes, approx. investment of \$5 / ea depending on volume discount and supplier. PSU link for pressure treated wood:

<https://extension.psu.edu/environmental-soil-issues-garden-use-of-treated-lumber>

1 acre cerulea on central leader pruning orchard layout requires 187 plants using a spacing of 18 ft on center and 12 ft in rows.

Mulch- My soil was within an ideal PH range, but I added approximately 6 still tubs (garbage truck size) into each 1 acre at a value of \$100 per load. Applied at 12 in deep. Wood mulch for weed suppression on top and applied every 3rd year to maintain, applied at 6” deep. \$800 / 30 yards

UC Researchers: Three different cost models of wide to dense hedgerow, with and without

tillage: <https://coststudies.ucdavis.edu/en/current/commodity/blue-elderberry/>

Propagation:

As mentioned above, there are no developed cultivars of Sambucus Caerulea. Nurseries or farms that offer cuttings have most likely used a cold stratification of seeds method. This means valued genetic traits such as juice quality, berry cluster size cannot be controlled.

Kirsten from Apothebox:

Seedlings- Propagation through seed planting.

- Pro- Cold stratification using either refrigeration or outside makes this an easy, inexpensive option with low investment in equipment; potting medium, seeds, etc. Ability to produce a large amount of successful seedlings.
- Con- Time to root and fruit is not as quick as other methods. Unreliable or a lack of predictable fruit quality, flowering, resistance to pests and drought, etc.

Cuttings- Hardwood or softwood cuttings with 1-3 nodes. Can be taken year-round.

- Pro- Inexpensive method of propagation, ease of planting, ships well, clone of plant with ideal qualities (fruiting, flowering, disease and drought resistance, etc).
- Con- Extremely difficult to propagate reliably. Some cuttings are best done at various stages of plant growth unlike *Canadensis*. May require misting and heating beds for increased success, however possibly marginal success.

Bare root – Rooted plant sold in dormant season (winter) where possible.

- Pro- Cheaper, established root system, grows quickly to fruiting stages, ships well, can be found through many county native plant sales for as cheap as \$1-2 ea.
- Con- Unknown fruit quality, will need to likely train a new central leader to ensure trunk quality and strength. Availability.

Suckers- Taken throughout the year by digging up the plant with sufficient roots.

- Pro- Established roots. Faster to fruit. Clone of parent plant. Inexpensive.
- Con- Limited availability. Labor intensive.

Katie Fyhrie, head farmer for UC study

Cold strat method is:

1. Collect berries from trees showing good juice (pink/purple) when ripe.
2. Crush seeds, cover with water. Ferment 24 hrs
3. Clean seeds, cold stratify in fridge for 60 days
4. Sow asap if they sprout in fridge
5. Sow in a general potting mix, mister is helpful
6. When ~1 in tall transfer to individual pots, water and wait.

Helpful Growing Guides *Sambucus Caerulea* (Blue):

UC SAREP (Sustainable Agriculture Research & Education Program):

UC Researchers have done an excellent job gathering as much information as is known about growing *Caerulea*. Check out all the tabs on growing, cost analysis, benefits of hedgerows, etc.

ucanr.edu/sites/elderberry

Other Online Resources:

Facebook Groups: Search FB for these groups and request to join.

Specifically for commercial growers:

West Coast Elderberry Growers

Elderberry Growers Connect

New Elderberry Growers

Facebook Group for hobbyists and enthusiasts: Elderberry World

For Research Articles on Elderberry:

Carmel Berry Company

Carmelberry.com/elderberry-research/

MidWest Elderberry Cooperative

<http://about.midwest-elderberry.coop/>

This is a wealth of information: PRO TIP: click on each of the tabs on the top banner and it will bring you to articles in that category.

Workshop on Dec 9 will cover in depth PRUNING, FEEDING, WATERING, etc.