

Understanding Opportunities for Elderberry Sales

Wednesday, April 22, 2020 1 - 2:30 PM



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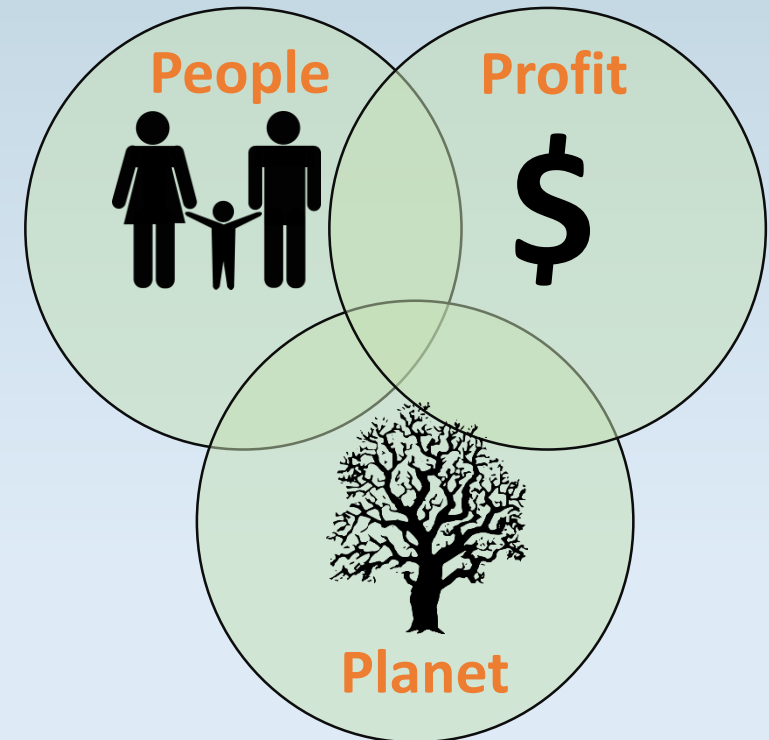
Session Overview

1 PM	Welcome	Gwenael Engelskirchen UC SAREP
	Intro to project	Sonja Brodt UC SAREP
	Snapshot of Global Elderberry Sourcing and Opportunities for Regional Sourcing	David Doty Botanical Development Manager Mountain Rose Herbs
	Making Value-Added Products with a Co-packer	Merrilee Olson Founder Preserve Farm Kitchens
	Direct Sales to Herbalists & Cooperative Sales Models	BJ Avery, Director Sonoma County Herb Exchange
	Nutritional Attributes of Blue vs Black elderberry	Katie Uhl UC Davis Food Science & Technology
	Q&A/discussion	
2:25 PM	Wrap up and follow up resources	

UC Sustainable Agriculture Research and Education Program

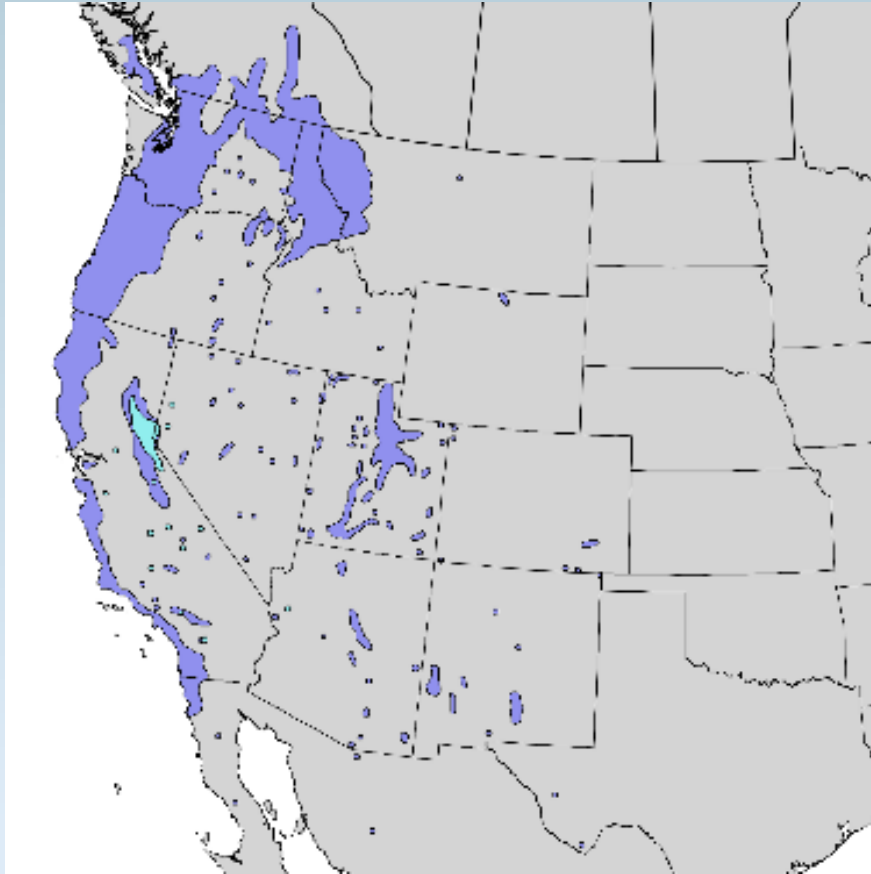
Scientific research and education to support agricultural and food systems that are --

- economically viable
- conserve natural resources and biodiversity
- enhance the quality of life in the state's communities.



Blue elderberry

Sambucus nigra, spp. *cerulea*



<https://commons.wikimedia.org>

- Health benefits: anthocyanins (anti-inflammatory, anti-oxidants) and immune-boosting
- Market interest
- Traditional food of native American tribes
- Drought-tolerant, fire-resilient, adapted to a wide range of climate/elevation zones in the West

Blue elderberry: a Component of Native Plant Hedgerows

- Habitat and food sources for birds and other wildlife, pollinators and natural predators
- Provide natural pest control in adjacent crop fields
- Catch field run-off, protect water quality



Current UC SAREP project: Commercial feasibility of harvesting elderberries from native hedgerows

CDFA Specialty Crop Block Grant (2017-2020)

- On-farm demonstration trials of native blue and N. American cultivars of elderberry
- Food chemistry analysis of native elderberry (*Sambucus nigra*, spp. *cerulea*)
- Market assessment of local elderberry products
- Outreach: website, grower guide, grower-buyer mixer, consumer



Katie Fyhrie of Cloverleaf Farm

Snapshot of Global Elderberry Sourcing and Opportunities for Regional Sourcing

David Doty

Botanical Development Manager, Mountain Rose Herbs



Making Value-Added Products with a Co-packer

Merrilee Olson

Founder, Preserve Farm Kitchens



VALUE-ADDED ELDERBERRY PRODUCTS

- ▶ PRODUCT IDEAS
- ▶ TO MAKE OR NOT TO MAKE (YOURSELF)
 - ▶ or: Choosing a Co-Packer
- ▶ COSTS



Carmel Berry Co.



What's Possible?

- ▶ Jams, preserves, jellies
- ▶ Syrups, Cordials & Shrubs
- ▶ Tea mixtures
- ▶ RTD beverages
- ▶ Elixirs, tinctures
- ▶ Spirits, wine
- ▶ Ingredient suppliers
- ▶ Wellness CSA's



Make it yourself? Or not?

- ▶ GOAL?
- ▶ TIME?
- ▶ EXPERIENCE?
- ▶ LICENSING?
- ▶ CAPITAL?



CHOOSING A CO-PACKER

- ▶ IT'S A PARTNERSHIP, CHOOSE CAREFULLY
- ▶ MINIMUM BATCH SIZE
- ▶ SCALABILITY
- ▶ PROXIMITY
- ▶ COSTS
- ▶ COMPATIBILITY/CAPABILITIES





COSTSafter the harvest

- ▶ START-UP \$3K - \$25K
- ▶ MARKETING \$1K- \$\$\$\$
- ▶ MATERIALS \$1k - \$5k per batch
- ▶ SHIPPING
- ▶ YOUR CUT



Direct Sales to Herbalists & Cooperative Sales Models

BJ Avery, Director, Sonoma County Herb Exchange

Fostering respect for the green world and
our community through the responsible use
and sustainable cultivation of herbs



Nutritional Attributes of Blue vs Black elderberry

Katie Uhl, *PhD candidate*

UC Davis Food Science & Technology

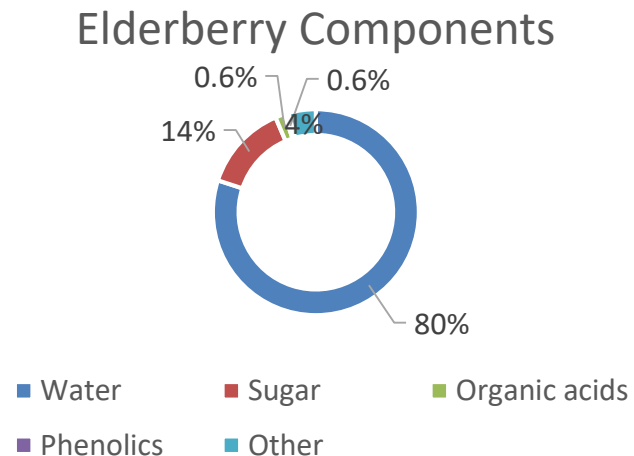


Nutritional Attributes of Elderberry Varieties (*Sambucus nigra* ssp.)

Katie Uhl, UC Davis Food Science and Technology (kruhl@ucdavis.edu)



Elderberries are composed of water, sugars, organic acids, small amounts of proteins and lipids, and phenolic compounds, including the red-purple pigments called anthocyanins. Genetics and growing conditions affect the levels of these compounds. The balance of these components influence the taste, color, and functional properties of the elderberries.



European elderberry: *S. nigra* ssp. *nigra*

The most extensively studied elderberry variety, the European elderberry has been used and cultivated for years. It's known for its health-promoting properties due to the high levels of phenolic compounds.

American elderberry: *S. nigra* ssp. *canadensis*

Cultivation of the American elderberry is on the rise, as the demand for elderberry increases in supplements, foods, and beverages. This variety has similar phenolic compounds to the European variety, but with a unique composition of anthocyanins.

California blue elderberry: *S. nigra* ssp. *cerulea*

The research is just beginning for this variety native to California! The data shows promising signs that the blue elderberry has similar nutritional attributes to the European and American elderberries (see Table 1 on back). Like other varieties of elderberry, blue elderberries have cyanidin-based anthocyanins and a variety of flavonols, flavan-3-ols, and phenolic acids.

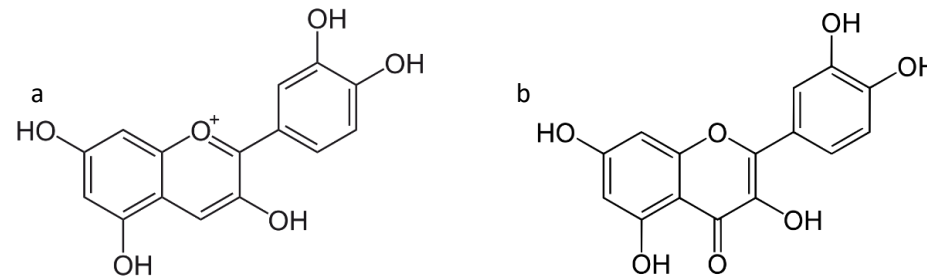


Figure 1. The predominant anthocyanidin (a: cyanidin) and flavonol (b: quercetin) in elderberries

Table 1. Variation in composition of elderberry subspecies

	<i>S. nigra</i> ssp. <i>cerulea</i> ^a	<i>S. nigra</i> ssp. <i>canadensis</i> ^b	<i>S. nigra</i> ssp. <i>canadensis</i> ^c	<i>S. nigra</i> ssp. <i>nigra</i> ^c
pH	3.66 ± 0.12	4.92 ± 0.15	4.22 ± 0.11	3.88 ± 0.11
Soluble Solids	14.26 ± 1.34	10.92 ± 0.95	13.23 ± 0.71	13.08 ± 0.32
Titrateable Acidity (mg citric acid/100g)	0.62 ± 0.09	0.56 ± 0.06	0.70 ± 0.12	1.17 ± 0.19
Total Monomeric Anthocyanins (mg CGE ^d /100g)	78.4 ± 21.8	247.7 ± 83.1	264.7 ± 73.6	239.3 ± 93.7
Total Phenolics (mg gallic acid equivalents/100g)	596.1 ± 92.6	591.8 ± 58.3	412.4 ± 55.2	460.8 ± 120.6

^a Values represent elderberries harvested from 14 hedgerows on five California farms in 2018 and 2019

^b Values represent 12 genotypes at three locations across three growing years. Source: Thomas, A. L.; Perkins-Veazie, P.; Byers, P. L.; Finn, C. E.; Lee, J. A Comparison of Fruit Characteristics among Diverse Elderberry Genotypes Grown in Missouri and Oregon. *J. Berry Res.* **2013**, 3 (3), 159–168.

^c Values represent eight genotypes of *S. nigra* ssp. *canadensis* and two genotypes of *S. nigra* ssp. *nigra* across two growing years. Source: Lee, J.; Finn, C. E. Anthocyanins and Other Polyphenolics in American Elderberry (*Sambucus canadensis*) and European Elderberry (*S. nigra*) Cultivars. *J. Sci. Food Agric.* **2007**, 87, 2665–2675.

^d Cyanidin-3-Glucoside Equivalents

- High variation within subspecies and between subspecies
 - Growing location and conditions
 - Farming or cultivation practices
 - Genetics
- Trends across elderberry subspecies
 - High levels of phenolic compounds
 - Common phenolic compounds: cyanidin-based anthocyanins, quercetin-based flavonols, phenolic acids
- The preliminary data on the California blue elderberry demonstrates that this native plant is similar to the European and Eastern/Midwestern US elderberry varieties, a promising start to showing that it could perform similarly in elderberry-based products.
- Research continues to quantify each phenolic compound, including anthocyanins, in the blue elderberry, in addition to evaluating the volatile aroma compounds.



Panelist Q & A

Please type your questions in the chat box.

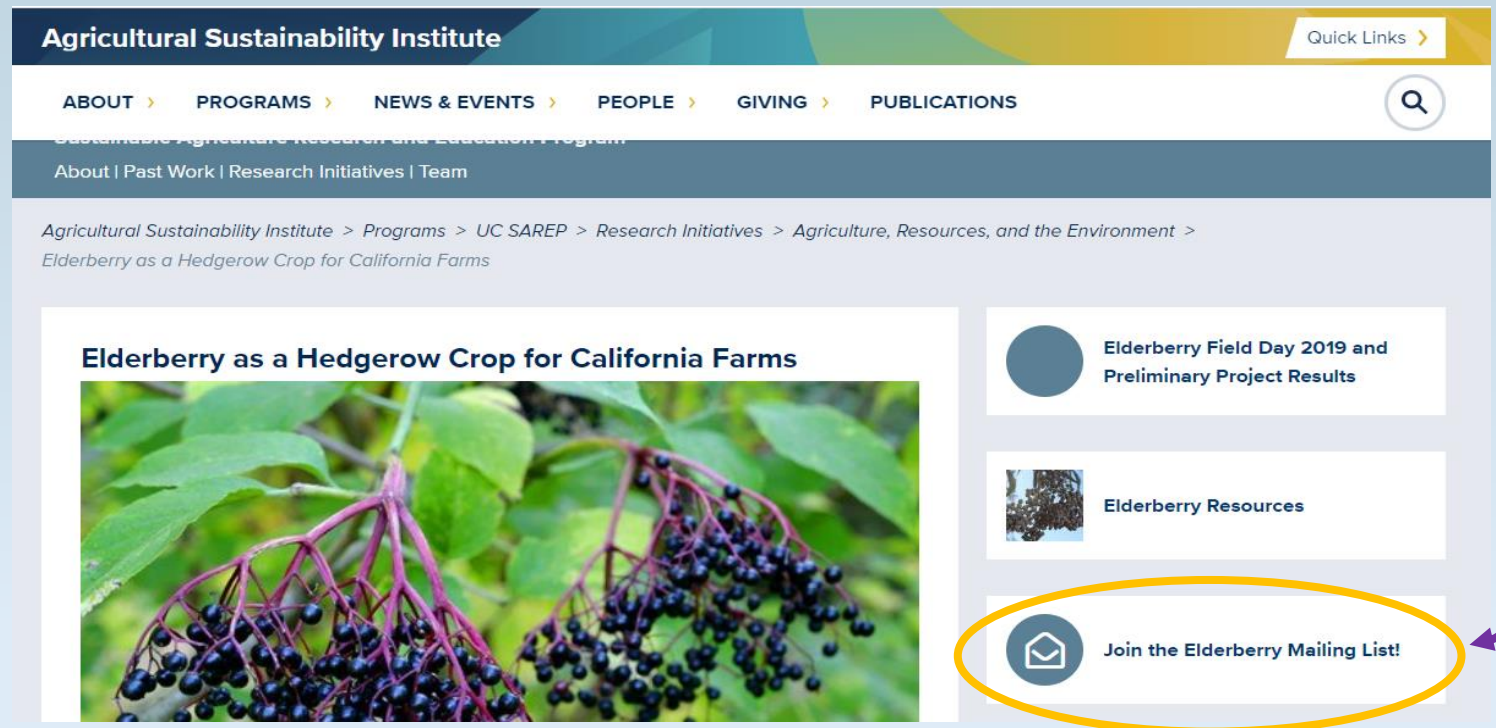
If your question doesn't get answered – either because we don't have time or because you're calling in by phone – feel free to follow up after the webinar.

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Resources

- UC SAREP website for ongoing information and updates
<https://asi.ucdavis.edu/programs/ucsarep/research-initiatives/are/elderberry>
- Upcoming Guide: *Producing Blue Elderberry as a Hedgerow-Based Crop in California*
- Join UC SAREP's elderberry mailing list for announcements
- Networking Contact List will be sent to webinar participants
- Elderberry Facebook groups - closed groups which require you to send a request to join.
 - [West Coast Elderberry Growers](#)
 - [Elderberry Growers Connect](#)
 - [New Elderberry Growers](#)



Thank you!

