

ELDERBERRY FERMENTATION FEST 2023

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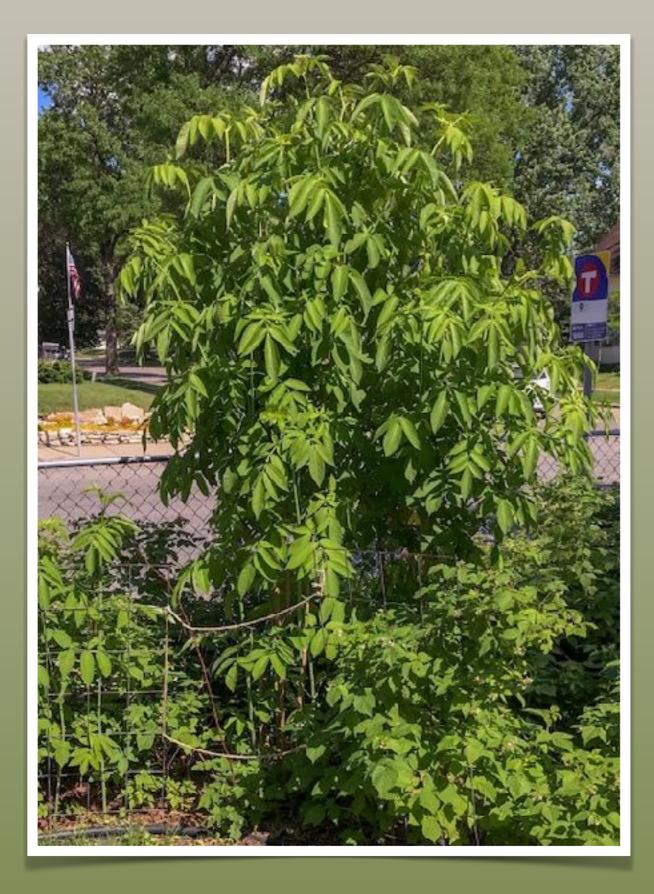
HTTPS://GROW.MIDWEST-ELDERBERRY.COOP/PRESENTATIONS.HTML

INTRODUCTION



- "Fermentation covers a multitude of sins." - Food Safety Scientist
- 5,000 yr. old beer jar with live yeasts in it Israeli archaeologists
- First profession interaction of environment, food systems and human cultures over 1,000s yrs.
- Human impact on climate the greatest it has ever been.









ENVIRONMENTAL BENEFITS

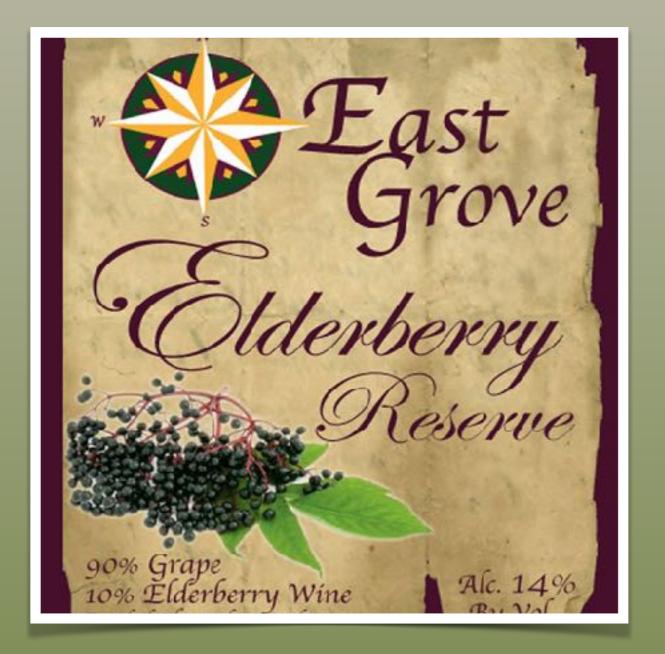
- Extensive shallow root system, Soil retention erosion control
- Rapid annual growth from 5-10 ft. annually
- Supports 60+ native pollinators, wildlife habitat
- Thrives best in full sun or partial shade
- On berms in low wet areas, along ponds
- Forest / field borders, windbreaks, irregular islands or contours
- Secondary soils sunny slope, rocky, sandy

ELDERFLOWER OPTIONS



- Fresh or dried to make a sugar based syrup
- Wine, ciders, liqueurs...
- Dried used like hops
- Dried for infusions
- Hydrosols for health applications

ELDERBERRY OPTIONS



- Your mother was a hamster and your father smelt of elderberries.
 Monty Python
- Mead, brandy, switchel, kombucha
- Blend with other fruits, grapes
- Make ales, sours, lemonade
- Juice as a mixer: 2 oz./quart
- Vinegars, sauces, dressings, glazes

WILD VS CULTIVATED

"...wild elderberry have the lowest quantities of these bioactive compounds..." Bioactive properties of Sambucus nigra L. as a functional ingredient for food and pharmaceutical industry, Karolina Młynarczyk, Dorota Walkowiak-TomczakPoznan University of Life Sciences, Institute of Food Technology of Plant Origin, ul. Wojska Polskiego 31, 60-624 Poznan, Poland [Point #14: https://midwest-elderberry.coop/health-nutrition/ functional-ingredient.html]

PRIMARY PROPERTIES

- Most commonly known as antiviral herb, which was the subject of early clinical research on colds, flu, coughs and other respiratory issues
- More recently, elderberry's anti-inflammatory potential has attracted more research grants.
- Direct and indirect anti-inflammatory effects: joints, muscles, brain
- Nutritionally dense, deep berry color with a sweet neutral flavor
- Gland stimulation, digestion, pancreas hypoglycemia, type 2 diabetes
- Antibacterial qualities

NUTRIENTS

- European S. nigra has 4 different antioxidants
- North American S. canadensis has 7 identified antioxidants
 - Same 4 as S. nigra with 3 additional ones
 - S. n. and S. c. levels of antioxidants considered roughly equal
- Anthocyanins, flavonoids, and other polyphenolics, amino acids
- Anti-inflammatory flavonoids Quercetin & Rutin (glycoside version)
- Relatively high in Vitamins A, C, & B6 minerals K, Ca, P and Fe (USDA chart)
- <u>http://nutritiondata.self.com/facts/fruits-and-fruit-juices/1883/2</u>

NATURE'S MEDICINE CHEST

- Hippocrates wrote a book on elderberry's uses
- Proceedings of the First International Symposium on Elderberry
 http://www.actahort.org/books/1061/
- Held at the University of Missouri, Columbia in June 2013
 - About 53 papers from 17 nations
 - Elderberry cultivation and clinical health research
- All parts of the plant, berries and flowers studied
- All major researchers and producers present

OF INTEREST

- Ukrainian research on using leaf extracts to repair DNA damaged from radiation like Chernobyl
- Elderflower seems a little more potent in treating allergies
- Anti-inflammatory research supported preventative practices, such as consuming a tablespoon of elderberry juice/day
- Compromised immune systems helped asthma, allergies, bronchitis, congestion, perhaps some cancers, chemo side-effects, skin problems
- "Elderberry is a potent sedative and helps induce sleep. It helps relax your nerves and muscles and imparts a feeling of well-being." (<u>http://www.home-remedies-for-you.com/articles/Elderberry-juice.html</u>)

ANTIVIRAL NOTES

- Elderberry is best known to the public for fighting flu and colds
- Seems to work on every virus due to its capacity to inhibit or prevent the reproduction of viruses.
- Much of early antiviral research used and was funded by Sambucol
- Jerusalem Zoo chimps & prevention against unknown infection
- Israeli and Norwegian studies on those already ill
- Potential use against exotic viruses, pets & animal husbandry
- MEC website as a resource: (http://minnesota-elderberry.coop/health--nutrition/index.html)

HEALING REPAIR

- How antiviral properties strengthen the immune system the advantage of systemic energy in prevention
- Indirect & direct anti-inflammatory effects may imply similarly active benefits in other biological system balancing.
- High levels of antioxidants promote gum health, circulatory system health, quicker muscle recovery from exercise
- Used to reduce side effects experienced with various treatments
- Secondary health support to other prescribed medical treatments
- "In order to derive maximum elderberry benefits, the best thing is to drink fresh juice of the elderberry fruits." (http://www.home-remedies-for-you.com/articles/Elderberry-juice.html)

INGREDIENT POTENTIAL

- Relative variability of elderberry nutrient, antioxidant, sweetness, acidity, fiber, color profiles by cultivar and location only partly known.
- Large existing market for freeze dried powders, extracts and concentrates Europe
- Identification of desired ingredients
 - Food & beverage specific raw material: colorant, seed oil and/or antioxidant
 - Medical catalysts and active agents
- Quality control of harvest: field and cultivar, documentation of harvest
 - Different quality grades and pricing linked to customer's purpose
 - Cultivar selection for defined/desired biochemical qualities
- Elderberry processing by-product marketing: people and animals

NUTRACEUTICAL FOOD

- Anti-inflammatory benefits key to growing year-round consumption
- Elderberry juice is a tasty, colorful, sweet neutral, nutrient-dense flavor easily added to food and beverages: mix @ 2 oz/quart or1 tbs/glass
- Most US products use European CONCENTRATE (heated for 3 days) vs. cool processed juice (5 min @ 180°F) taste, nutritional advantages
- Flower & berry cordials, extracts, teas, infusions, jellies, jams & spreads
- Wine, mead, brewed beer & vinegars, liquors, kombucha
- Food/beverage coloring: tasty nutritious fun with a purplish passion!

DEVELOPMENT PARTNERSHIPS

- A growers cooperative can better coordinate with multiple partners
- Quality control and identification, ingredient spec development
- Support & encourage continuing academic research
- Harvest aggregation, sorting and commercial volume commitments
- Cooperation, tracking from field to customer to consumer
- Better able to make and maintain make long term supply agreements
- Participate in / distribute to larger markets national, global
- "Purple Berry" designation