

Fruits with Potential for (Re) Designing the Sustainable Orchard

Our research emphasizes fruits grown for human health while creating an orchard ecosystem where we are stewards and beneficiaries. We are expanding upon the successful research conducted by Dale and Cindy Secher of Carandale Farms in Oregon, Wisconsin, testing the adaptability of the eight most successful varieties from their trials to different regional growing conditions using organic production practices.

These promising fruits are...



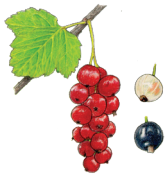
Aronia or Chokeberry (*Aronia melanocarpa*) Cultivar: Viking

Ecology - Native. Zone 3 - 4; Mature height 6'; Plant Spacing 3 - 5'; Sun/shade - full or partial. Factor in mid-sized habit; small, pink-white lightly fragrant flowers borne in clusters in spring; neat, glossy, ovate leaves turning to flame in fall; and blueberry-size fruit hanging from red pedicels in pretty clusters turning from green to black as fruit matures. **Grower friendly** - tolerant to wet and arid conditions, acid - alkaline soil, very good pest/disease resistance. **Economic/Market Potential** - Low input, first fruit harvest 0 - 1 yr. **Processing potential** - juice, yogurts, wine, baked goods, jams. **Social Benefits** - High nutraceutical content, deep anthocyanin - fruit higher in anti-oxidant than blueberry and cranberry.



American Elderberry (*Sambucus canadensis*)

Ecology - Native. Zone 3; Mature height - 12'; Plant spacing 6 - 8'; Sun/shade - full/partial. Tiny flowers form large, deep pink umbel, followed by clusters of glossy, dark purple berries in late summer. Flowers and berries edible, however, other plant parts toxic. **Grower friendly** - tolerant, adaptable shrub, grows in most soil and drainage conditions, good pest and disease resistance. **Economic/Market Potential** - Low input, first harvest 1 - 2 yrs. May need bird netting. **Processing potential** - juice, wine, preserves. **Social Benefits** - High nutraceutical and anti-oxidant content. Historically known as "the medicine chest of the common man," today popular as a cold and flu remedy.



Currants - Red, White & Black - (*Ribes rubrum*, *R. petraeum*, & *R. nigrum*) Cultivars: Red Lake, White Imperial, and Titiana

Ecology - Native. Zone 4 - 5; Mature height 4 - 6'; Plant spacing - 3 - 5'; Sun/shade - prefers partial shade (plant currants on the 'drip line' of your apple, pear, or quince trees), can be grown in full sun though leaves prone to scorching and does poorly in extended high temperature and humidity. Shrub with red, white, and/or black berries in clusters. Black currant grows slightly larger. Minimal pest issues and foliar diseases (leaf spot, anthracnose, and mildew) can be addressed by ensuring plant spacing, pruning in fall of second and third year canes, and good air flow. **Economic/Market Potential** - Medium input, first harvest 1 - 2 yrs. Red and white currants can be marketed as fresh and processed fruit, while black currant is better suited to processing. Potential products include juices, preserves, wines. **Social Benefits** - Well balanced mineral and vitamin content, high nutraceutical content makes currants appealing as a culinary and medicinal fruit source. Black currants offer twice the antioxidant capacity of blueberries, four times the vitamin C of oranges and twice the potassium of bananas.



Gooseberry (*Ribes uva-crispa, hirtellum*) Cultivars: Pixwell, Poorman

Ecology – Native. Zone 4 – 6; Mature height – 3’; Plant spacing 3’; Sun/shade – partial shade. As with all *Ribes* sp., small, dark, tart fruit. Foliar diseases and pest issues will be minimized with cool temperatures, good mulching, adequate air circulation, and some annual pruning to the strongest second year cane. Poorman highly resistant to white pine blister rust, mildew, fewer thorns. **Economic/Market Potential** – Medium input, first harvest 2 – 3 years. Both fresh market and processing potential. **Social Benefits** – Well balanced mineral and vitamin content, good nutraceutical content similar to that found in other *Ribes* sp.



Russian Quince (*Cydonia oblonga*) Cultivar: Aromatnaya

Ecology – Antiquely native to Persia and Mesopotamia. Zone 4; Mature height – 12 – 20’; Plant spacing – 8 – 12’; Sun/shade – tolerant to full – partial shade and full sun. Unlike most other quinces, the skin of *C. oblonga*’s pear shaped, golden ripening fruit, is thin and smooth. Blooms set late to avoid spring freezes, revealing showy pink blossoms. Good regional adaptability to a variety of soils and temperatures, self fertile with good pest resistance. Can be prone to fire blight. **Economic/Market Potential** – Medium input, first harvest 1 – 2 years. Little fresh market appeal, almost always cooked and sweetened, often used in preserves because of high pectin. **Social Benefits** – High in vitamin C and B2, potassium, potash, and phosphorus, lauded as the ‘stomach’s comforter’. Apicius, author of the world’s first cookbook, recommended whole quinces boiled with honey and wine.



Saskatoon (*Amelanchier alnifolia*) ‘Juneberry or Serviceberry’ Cultivars: Honeywood, Northline, Smokey, Success, Pembina

Ecology – Native. Zone 2; Mature height; Varies; Plant spacing 8 – 12’; For hedge effect plant 4 – 5’; Sun/shade – tolerant to both partial shade and full sun. Similar to a blueberry in looks and taste, the Saskatoon fruit hangs in clusters from spreading, open vase-shaped bushes which vary in height from 8-10’ (most *A. alnifolia*s) to 20 – 25’ (Autumn Brilliance). Tolerant to a wide range of soils. Very hardy, adaptable plant for northern climates with good pest and disease resistance. **Economic/Market Potential** – Medium input with first harvest after 3 years. Strong fresh market potential including U-pick operation as well as high demand for processing due to its versatility of products such as preserves, pies, sauces, soups, stews, or dried with meats. **Social Benefits** – High nutraceutical content similar to that of cranberry and blueberry, contains more fiber, protein, and fat than most other fruits. Historically highly regarded as a digestive aid and laxative.



Sea Buckthorn (*Hippophae rhamnoides*) Cultivar: Titan

Ecology – Native to foothills of southern Siberia, Himalayas. Zone 2 – 3; Mature height 6 – 13’ depending on soil type; Plant spacing 6 – 8’; Sun/shade – requires full sun. Undemanding, drought tolerant plant handles variety of soils due to its ability to fix nitrogen. Trees dioecious (either male or female) and will need small grove of 3:1 female to male plants for pollination. Bright orange fruit actually a ‘nut’ is small and acidic borne on thorny branches with silvery gray willow-like foliage. **Economic/Marketing Potential** – Low input, first harvest 2 – 3 years. Harvesting a challenge due to thorny branches. Some fresh market appeal, primarily processing potential as juice, smoothy, or used as skin salve. **Social Benefits** – High vitamin and mineral content with berries containing 9 times as much vitamin C as an orange plus high doses of vitamins A, B, and E, beta-carotene, flavonoids, linoleic and omega 3 fatty acids. Health benefits key to marketability due to high antioxidant and oil content.

