

# Uncommon Fruits for Kentucky Gardens

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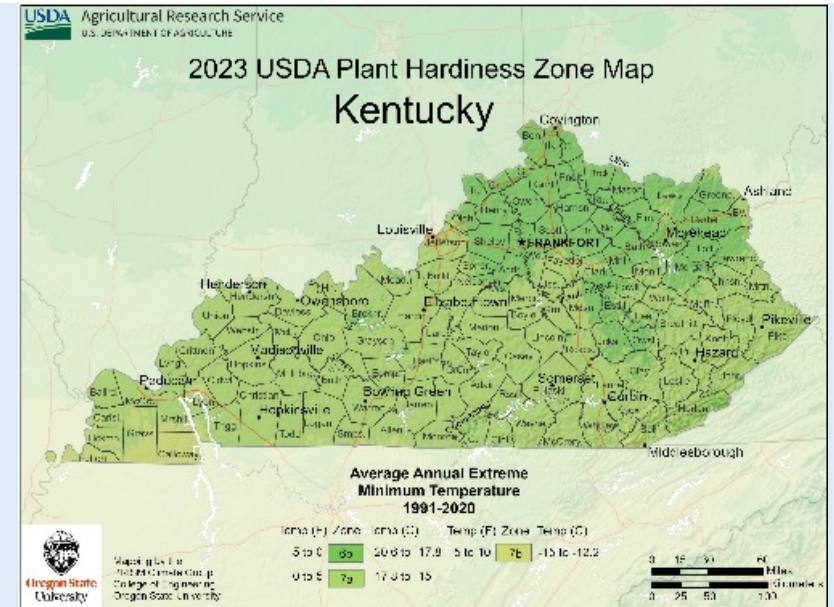
# Potential

- Fewer pests? - less spraying
- Sustainability with natives
- Landscape interest
- New experiences – tastes, textures
- Health – antioxidant superfoods?
- But there's so many different kinds
  - What will grow well here in KY?
  - Are they as great as nursery catalogues describe them to be? Downsides?



# Considering Hardiness

- USDA zone map used widely to rate hardiness of perennials
  - Based on expected minimum temp.
    - Rolling average of previous 30 years
    - 10°F range/zone, 5°F for subzones
  - Not the extreme that is possible
    - Temps. can get colder than average!
- To be safe, choose plants at least 1-2 zones hardier
  - In 7a, choose plants with hardiness to 5-6a

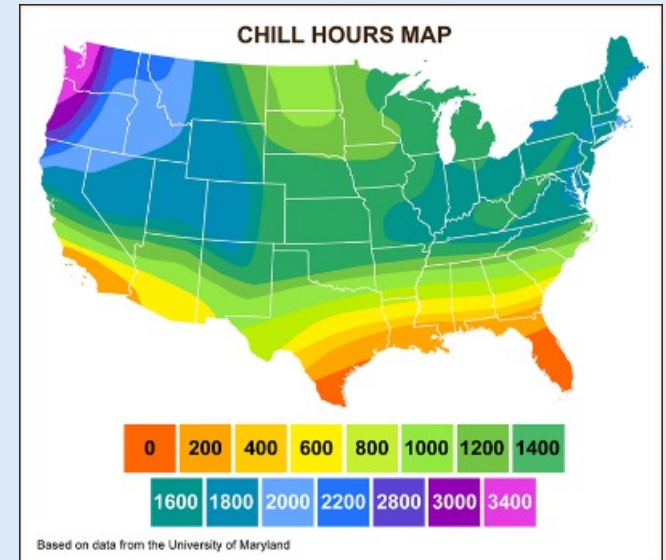


Cold Extremes (Below 0°F) in Marshal Co., KY

Year	# of Days	Min. Temp.
2015	3	-13.7
2016	0	----
2017	0	----
2018	0	----
2019	0	----
2020	0	----
2021	1	-0.3
2022	1	-6.3
2023	0	----

# Chilling Requirement

- Amount of cold needed to break dormancy
  - Adaptation to keep plants from growing too early
  - Plants can remain outwardly dormant
    - If growing conditions unfavorable (too cold)
    - But warm temps. will cause de-hardening
      - Clock starts ticking on eventual bud break
- Danger in growing low chill plants in high chill area
  - Chilling requirement satisfied by Dec. in KY
    - Cells become active in prolonged thaw
  - Winterkill possible, early bud break likely = crop loss

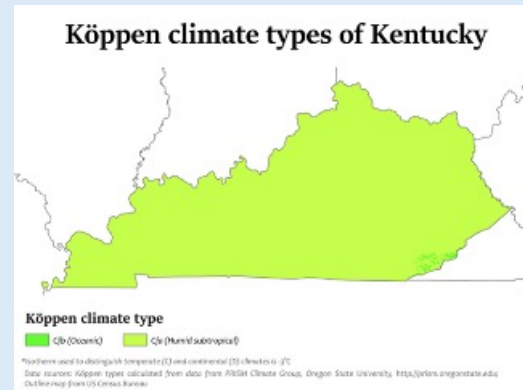


# Climate Considerations

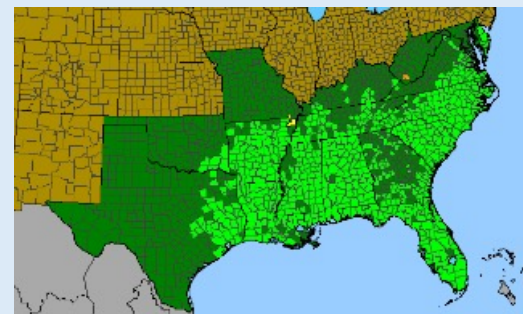
- Habitat determines adaptation
  - Tolerance of high/low temp., moisture (rainfall, humidity), light intensity, soils, nutrition, etc.
  - Growing season length
- Successful cultivation requires acknowledging adaptation
  - Attempting to grow too far “out of place” causes problems



Cranberry native range



Humid subtropical – hot, humid summers, mild winters and evenly distributed precipitation throughout year



Muscadine native range

# Juneberry/Serviceberry

- *Amelanchier* genus  $\approx$  18 spp. in N. America
  - Members of rose family - pome fruit
  - June/serviceberry adapted to central U.S.
    - Forest edge or understory habitat
- Large bush to small multi-stemmed tree
  - 10-25'+ tall depending on species/cultivar
    - Minimum 10' spacing, maybe 15'+?
  - Adaptable – prefers slightly acidic, higher OM soil
    - Tolerates shade – prefers full sun





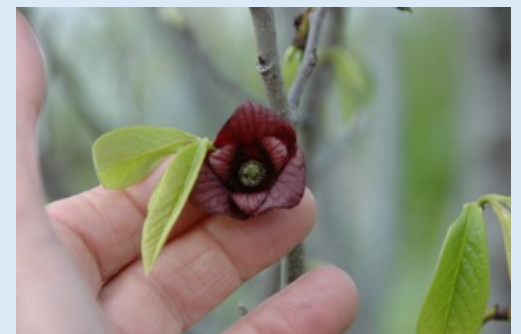
# Juneberry

- Blueberry-sized blue/black fruit
  - Blooms (self-fertile) soon after flowering pear
    - 2-4 yrs. to bearing, ripens June-July
    - Fruit used in jelly, juice, preserves, pies
  - Some varieties have good fall color
- Downsides – birds love them
  - Mild apple-like flavor – sweet & low acid
    - Fresh is best – cooking can diminish flavor
    - Blend with something acidic
  - Rose family pests? – cedar rust, fire blight, curculio, etc.



# Pawpaw

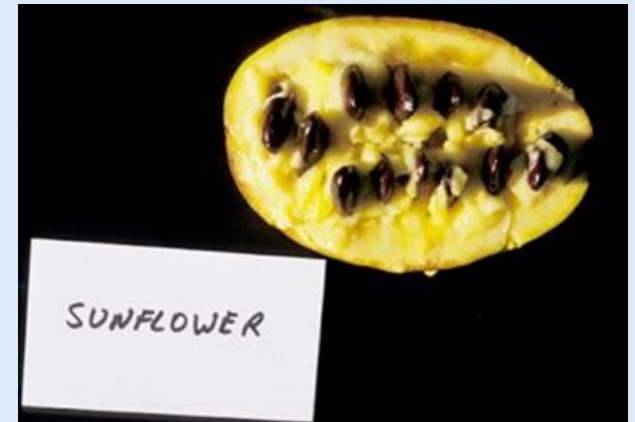
- Largest native fruit
  - 3-6"+ long, 2-3"+ wide, up to 1 lb.
  - Pyramidal tree – 15-25' tall, 10-20' spacing
    - Minor early pruning & branch spreading (brittle wood)
    - Adaptable – prefers moist, well drained soil, pH 5-7
- Flowers late spring, rarely frosted
  - Pollinated by flies & beetles
    - 1-4 ovaries/flower – clustered fruits fused at ends
  - Ripens August-September  $\approx$  160 d. after bloom
  - **Choose named & grafted trees for fruit quality**





# Pawpaw

- Tastes like banana pudding + spices
  - Pick soft or dead ripe (yellow skin w/black spots)
    - Can refrigerate  $\approx$  1 wk. (may develop off flavors if longer)
  - Pulp freezes well – scoop out & puree
    - Smoothies, baked puddings, pie, ice cream
- Downsides – limited pollination (100' max)
  - Less than 1% fruit set – 15-20 lb./tree normal
  - Cut or mow to control root suckers
  - Small trees may be sensitive to sunlight 1<sup>st</sup> yr.
    - Canopy protection needed?



# Persimmon

- American (*Diospyros virginiana*)
  - Fruits 1-2", astringent until dead ripe
    - Then soft, sweet, & aromatic
  - Well suited to KY growing conditions
- Asian (*Diospyros kaki*)
  - Fruits 2-3+", some seedless & non-astringent
  - Winter injury some years even in zone 7
- Hybrids exist – combining qualities of parents



# American Persimmon

- 30-40' tall & 15-20' spacing
  - **Choose named & grafted for fruit quality**
    - Most are 90 chromosome, northern race
    - Female & male flowers mostly on separate trees
      - Seedless fruit set if unpollinated?
- Downsides – fruit soft, jelly-like when ripe
  - Detaches naturally – can split/pop when gradually drop
    - Don't locate near walkways – let grass grow tall or place mats under tree
  - Roots brittle – can be difficult to dig/transplant larger trees
  - 5-8 yrs. to bearing – need to separate skins & seeds from pulp



# Asian Persimmon Hybrid

- 90 chromosome *D. americana* x *D. kaki* crosses
  - Larger fruit than Am. & better hardiness than kaki
    - Will set fruit when unpollinated like Asian
  - Smallish trees – 15-20' tall depending on variety
    - Canopy between upright Am. & spreading kaki
    - ≈15' spacing between trees
- Downsides
  - Graft union winter protection when young?
  - Non-astringent fruit types do not exist
    - Must be fully ripe & completely soft to use like Am.





# Mulberry

- Species: *Morus alba*, *rubra* (native), *nigra*
  - Tree size: most to 30-50', except *nigra*
  - Hardiness: zones 5-9, *nigra* only to 7-9
  - Variable leaf shape – un-lobed or lobed
  - Most  $\frac{3}{4}$ -1  $\frac{1}{2}$ " fruit, some *nigra* (Pakistan) 3"+
- Adaptable, need full sun, 10-30'+ space
  - Pruning when young to establish framework
  - Self-fertile, relatively care-free
  - Minor pests: aphids, scale, popcorn fruit disorder





# Mulberry

- Blooms L. spring, self-fertile
  - Ripens E. to L. (nigra) summer
  - Most fruits juicy, sweet, with low acidity
    - Full flavor develops late after acids drop
    - Used fresh, juice, preserves, baking
      - Best mixed with something tart
- Downsides – messy and can be tedious to process
  - Stems need to be removed before processing (seeds strained?)
  - Fruits drop readily when ripe; will stain sidewalks & decks
    - Birds love to eat and spread seeds; seedling will come up everywhere



# Elderberry

(*Sambucus* spp. – American black, European, PNW blue)

- All very similar in habit – can cross readily
  - European & PNW types less cold & heat tolerant
  - Readily colonizes ditches, fencerows, pastures
  - Tolerate wet soils – some flooding when dormant
- Medium to large bush/hedge – 6-9' tall/wide
  - Perennial crown & short-lived hollow canes
    - Full sun – 10' individual spacing, 5' for hedge
    - Partially self-fertile, Aug.-Sept. harvest
  - Many uses – baking, jelly, juice, wine, flowers added to batter, wine, tea



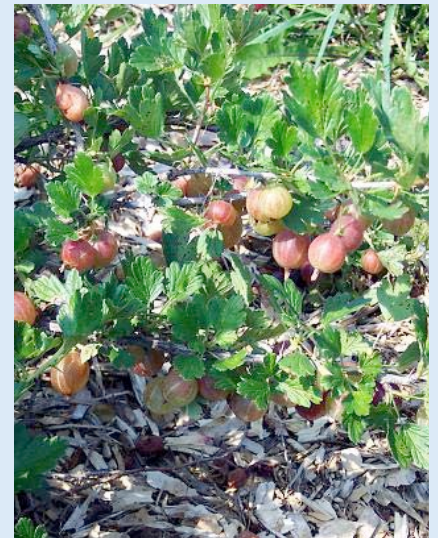
# Elderberry

- Easy to care for once established
  - 1<sup>st</sup> yr. – set crowns & control weeds
    - Fertilize ½ c. 10-10-10, water & mulch
  - 2<sup>nd</sup> yr. – fruit, 1 c. fertilizer at bud break
  - Prune annually
    - Remove & regrow all canes vs. selective pruning of 2<sup>nd</sup> or 3<sup>rd</sup> yr. canes
- Downsides – birds love them, processing can be tedious
  - Other pests – SWD, cane borers, rust, canker
  - Ripe fruit may upset stomach - solved by freezing, cooking, or drying
    - Roots, leaves, stems, & unripe fruit are considered toxic



# Currants, Gooseberries, & Jostaberry

- Currants – black, red, white
  - Black – European, clove, American
    - Euro. – best fruit quality (aromatic, resinous)
    - Clove & Am. – better adaptation, disease tolerance
  - Red, white – milder flavor, less tolerant of leaf diseases
- Gooseberry
  - Same genus (*Ribes*) as currants
  - Am. x Euro. crosses – fair to good flavor & adaptation
- Jostaberry – black currant x gooseberry crosses





# Currants, Gooseberries, & Jostaberry

- 3-6' tall bushes with small  $\frac{1}{4}$ - $\frac{3}{4}$ ", tart fruits
  - Ripen June-July, used for juice, jams, pies, wine
  - Black currant, gooseberry, Jostaberry
    - Singular to small (2-4) fruit cluster
  - Red, white currant – longer fruit clusters (“strigs”)
- Plant at 3-6' spacing – tolerate some shading
  - Planting (1<sup>st</sup>) yr. – mulch & pull all fruit
  - 2<sup>nd</sup> yr. – keep only 3-5 new (1 yr.), vigorous canes
  - Continue until bush is mix of 1-3 yr. old canes, remove all 4<sup>th</sup> yr. canes
    - Should have 15-20 canes at maturity





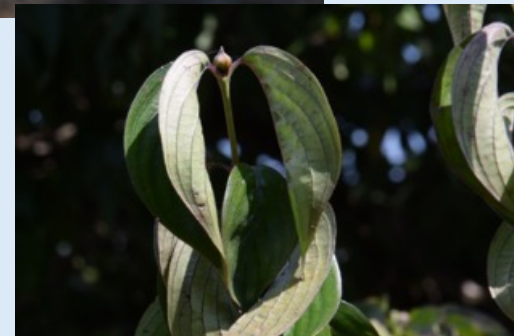
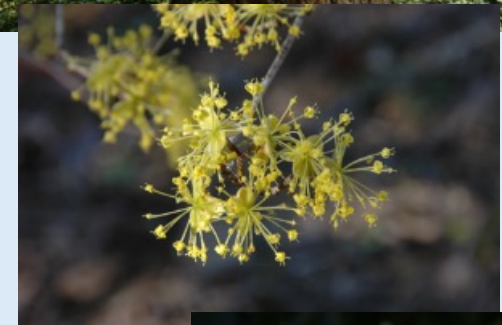
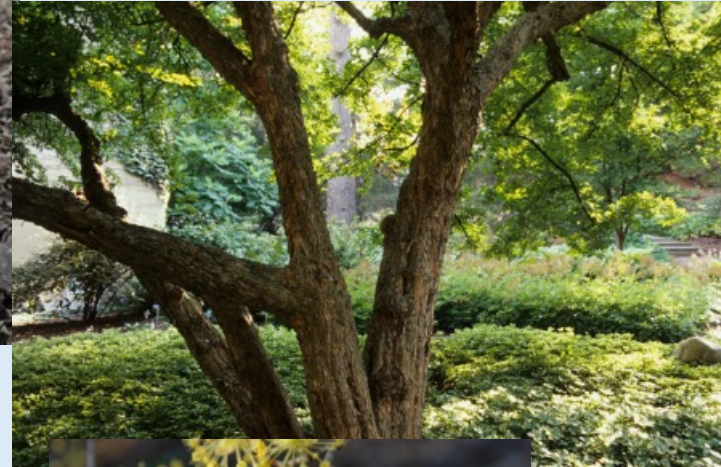
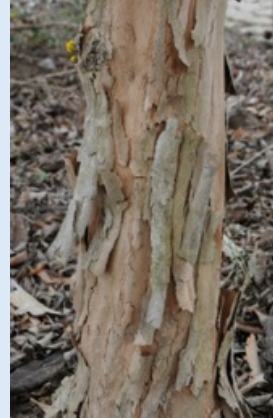
# Currants Gooseberries, & Jostaberry

- Choose white pine blister rust tolerant varieties
  - WPBR introduced about 1900
    - Requires *Ribes* spp. to complete disease cycle
    - Led to federal ban until 1966
  - Reduce spread by planting +1,000 ft. if susceptible
- Other downsides – birds, can suffer in summer heat
  - Early bloom frost losses – cross pollination helps
    - Most varieties partially self-fertile
  - Powdery mildew, leaf spots can defoliate if susceptible
    - Leaf raking, 3-4 sprays of captan, budbreak to post-harvest



# Cornelian Cherry

- Member of dogwood family
  - E. European to W. Asian native
    - Part of Roman & middle age monastic gardens
  - Ornamental types have stunning yellow bloom
    - Very early (February-March) – bees love
    - Frost tolerant – total fruit loss rare
- Hardy to zones 5-8
  - Small, multi-stemmed tree, 15-25' tall/wide
    - 15-20' space needed – can be single trunk trained (suckers)
  - Well drained soils, 6-7 pH, full sun to partial shade



# Cornelian Cherry

- Ripens July-September, depending on variety
  - Red or yellow fruit color – barrel or pear shaped
    - $\approx 5/8$ " length, large pit takes up  $\frac{1}{2}$  of fruit
  - Choose variety specifically for fruit production
    - Chewy texture with flavor like slightly unripe tart cherry?
    - Jellies, tarts, wine, pickled like olive
- Downsides – tedious to pick and pit
  - Attractive to birds – don't place near walkways
  - Borers, other dogwood pests?





# Jujube (Chinese Date)

- Small tree (15-30') in buckthorn family
  - S. Asia native, adapted to subtropical climate
    - Hardy to at least zone 6 (-10°F)
    - Can have issues with breaking dormancy early
  - Flowers 3-5 yrs. after planting
    - Inconspicuous blooms on new shoots
    - Most varieties partially self-fertile
- Widely adapted to different soils
  - Need full sun, thrive in heat, tolerate drought
  - Pruning mostly to maintain spreading, open canopy



# Jujube (Chinese Date)

- Fruits cherry to small plum size ( $\approx 50\%$  pit)
  - Long picking window, every few days (Aug.-Oct.)
    - Mottled to fully brown – crisp, v. mild apple taste
    - Overripe – begins to wrinkle, get sweeter/spongier
  - Eaten fresh, baked, fully dried in place of dates
- Downsides – some varieties armed with spines
  - Can send spiny suckers up from roots
    - Don't cultivate around tree to prevent root damage
  - If humid, will not dry on tree before split/dropping





# Common Fig

- Top kills  $\approx 10^{\circ}\text{F}$  & regrows from crown
  - Sets fruit without pollination
    - Fruits ready to harvest when colored, hanging down
  - Chicago Hardy most common for in-ground
  - Choosing others to try – most hardy, vigorous, earliest ripening (L. Aug.), will fruit after being killed back, small or closed “eye”, tolerant of fig rust
- Downsides – low yield, birds/wasps may take a few
  - Rains can cause splitting/rotting if “eye” is open
  - Fresh is not like dried/preserves/bars
    - Soft fruit does not store well (1-2 days) – don’t refrigerate
  - White sap (latex) may cause irritation



# Haskap

- Native to Japan, zones 2-8
  - Fruit is tart with blueberry-like flavor
  - Blooms E. March – M. April
    - Flower buds frost resistant – limited fruit losses
  - Survives in KY but does better in moderate climate
    - Tolerates some shading
- Downsides – heat sensitivity, leaf bronzing
  - Phytophthora root rot in wet soils
    - Other pests: birds, powdery mildew, leaf spots
  - Fruit is soft when ripe, drops, short shelf life



# Others?

- Aronia (chokeberry)
  - Ornamental bush, white flowers and good red fall color
  - Fruit is astringent (drying) even when ripe, unpleasant to eat
- Che (Chinese mulberry) & kousa dogwood
  - Ornamental, pretty trees, but lukewarm (mild) fruit flavor
- Nanking & bush sour cherry
  - Good flavor, but small fruit size, especially Nanking
  - Typical cherry pests, leaf spots can cause severe defoliation

# Others?

- Autumn olive, sea buckthorn, & goumi (Eleagnacea family)
  - Bushes or small trees with small, tart, astringent fruits (variable)
  - Birds will spread seed and can become noxious weeds
- Maypop passionflower – herbaceous vine from rhizomes
  - Showy flowers, fruits are tart, mildly tropical (lemon-lime)
  - Aggressive growth – support needed; can become noxious weed
- Asian pears – Euro. pear relative, “apple pears”
  - Crisp, mild flesh, can be eaten off tree, choose fire blight tolerant varieties

# Maybe?

- Alpine & musk strawberries – heat sensitive?
  - Alpine: white or red fruit, few runners, fair to good flavor
  - Musk: small red fruit, good flavor, male & female plants, many runners
- Goji berry (wolfberry, matrimony vine)
  - Sprawling habit, thorny, need well-drained soil, bland tomato-like flavor
- Medlar – N. Euro origin, heat sensitive?
  - Small tree, 1-2” rose hip-like fruit, good in tarts, butters, jellies



# Maybe?

- Shipova – Euro. Pear x mt. ash hybrid
  - Small tree – 15-20', partially self-fertile, 2" fruits – sweet, fragrant aroma
  - Notoriously slow to bear – 10-20 yrs., likely FB susceptible
- Crabapples, hawthorn, mt. ash, mayhaw – apple relatives
  - Small fruit, tart, bitter or mealy flesh, susceptible to same pests as apple
- Beach, americana, marianna wild plums & their crosses
  - Bushes to small trees – 10-20', same pests as cultivate plums
  - Fruits tend to be small & tart, better for preserves & baking than fresh

# Not Recommended

- Hardy Kiwi
  - Tolerates low temps., but de-hardens & breaks dormancy early
- Lingonberry, cranberry, lowbush blueberry, huckleberry
  - Not well adapted to humid, hot KY climate
- Hybrid (blackberry x raspberry crosses) & PNW brambles
  - Marionberry (maybe?), boysenberry, thimbleberry, salmonberry, etc.
  - Not reliably winter hardy & frost-sensitive (early de-hardening)

# Not Recommended

- Plum crosses – apbruims, pluots, pluerry, plumcots, etc.
  - Either not hardy, too early blooming, or disease susceptible
- Quince – pear relative (*Cydonia oblonga*)
  - Small tree – 15', not edible fresh – needs cooking to bring out flavor
  - Same pests as pear, except more susceptible to fireblight
- Asian persimmon (*Diospyros kaki*)
  - May survive average winters, but not years with polar vortex (1 in 10)
  - Chinebuli (non-astringent) hardiest, has survived trials in eastern KY

# Select Varieties

- **Juneberry** – Regent, Autumn Brilliance, Smokey, Thiessen, Northline
- **Pawpaw** – KSU Atwood, Potomac, Wabash, Alleghany, Shenandoah, Susquehanna, Rappahannock
- **American persimmon** – Celebrity, Early Jewel, Lehman's Delight, Early Golden
- **Hybrid persimmon** – Zima Khurma, Kasandra, David's Kandy, Rosseyanka, Mikkusu, Sestronka, Picudo
- **Mulberry** – Illinois Everbearing, Wellington, Gerald Dwarf, Collier, Pakistan (M. nigra)
- **Elderberry** – Wyldwood, Bob Gordon, Ranch, Marge, Johns, Nova, York
- **Black currant** – Titania, Ben Sarek, Blackcomb, Whistler, Crandall (clove currant)
- **Red & white currants, & jostaberry** – Jonkeer van Tets (R), Viking (R), Primus (W), ORUS 10 (J)
- **Gooseberry** – Hinnomaki Red, Amish Red, Tixia, Friend, Red George, Jewel
- **Cornelian cherry** – Red Star, Yellow, Coral Blaze, Elegant, Pioneer, Red Dawn, Sunrise, Bodacious
- **Jujube** – Li, Lang, Sherwood, GA-886, Sugar Cane, So, Honey Jar, chico
- **Haskap** – Early Blue, Sunrise, Yezberry, Solo



# Plant Sources

- England's Orchard and Nursery - <http://www.nuttrees.net/>
- Peaceful Heritage Nursery - <https://peacefulheritage.com/>
- Rockbridge Trees - <https://rockbridgetrees.com/>
- Hidden Springs Nursery - <http://www.hiddenspringsnursery.com/>
- Burnt Ridge Nursery - <https://www.burntridgenursery.com/>
- Edible Landscaping - <https://ediblelandscaping.com/>
- One Green World - <https://onegreenworld.com/>
- Raintree Nursery - <https://raintreenursery.com/>
- Indiana Berry & Plant - <https://indianaberry.com/>
- Nourse Farms - <https://www.noursefarms.com/>
- St. Lawrence Nurseries - <https://stlawrencenurseries.com/>
- North American Fruit Explorers (NAFEX) - <https://nafex.org/>