



Minor Small Fruit Lacking Commercial Potential in Kentucky

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Introduction

Over the years, growers and county extension agents have inquired about a number of different small fruits, questioning if these crops could be grown in Kentucky. A few of these crops have potential, while many others are either completely unsuitable for production here or they are unreliable from year to year. This profile discusses some of the pros and cons of producing this latter group of small fruit. The purpose is to communicate the reasons these unique fruits are not generally recommended for commercial production in the Commonwealth.

BOYSENBERRY, LOGANBERRY, YOUNGBERRY, OLALLIEBERRY, MARIONBERRY, SALMONBERRY & THIMBLEBERRY

All are bramble fruit (*Rubus* spp.). The first five are crosses between the Pacific blackberry and red raspberry. The very large, deep reddish-black fruit is similar to a blackberry. Fruit is eaten fresh or processed into jams, syrups, wine, and various baked goods. The trailing canes, which may be thorny or thornless depending on the cultivar, require a trellis for support. Current production is primarily in the Western U.S, particularly California and Oregon. Salmonberry and thimbleberry are wild species native to the west coast of North America, with a separate population of thimbleberries extending to the Great Lakes region.

Pros

These berry crops are versatile and can be canned or preserved in jams, jellies and syrups, as well as eaten fresh. They are very flavorful, high quality fruit that



Cranberry harvest in New Jersey

would make an interesting addition to fresh market sales and value-added product lines. The boysenberry brought prestige to Knott's Berry Farm in California.

Cons

Unfortunately, these crosses and the salmonberry are not winter hardy in Kentucky and, as such, are not recommended for this area. Growers willing to go to the expense and trouble of protecting plants against winter injury could have success some years, but production would likely be inconsistent and unreliable. Thimbleberry, while winter hardy, is sensitive to spring frosts. The fruit have a very short shelf life and need to

be consumed or processed within two to three days of harvest.

CRANBERRY AND LINGONBERRY

Cranberry (*Vaccinium macrocarpon*) and lingonberry (*V. vitis-idaea*) are

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perennial evergreen vines with prostrate growth habits. The small, red, smooth fruit are round to elliptical in shape. Cranberries are marketed fresh, dried, canned, and processed as juice or sauce while lingonberries are normally processed into jam or sauce.

Pros

Cranberries have seasonal appeal; demand increases dramatically during November and December. Lingonberry products are obtainable primarily from specialty stores. Due to the limited nature of their availability, especially out of traditional season, potential exists to expand fresh market and value added product sales.

Cons

Cranberries and lingonberries have very specific growth requirements, which include acid peat soil, abundant water, and a dormancy period requiring sufficient chill hours for fruit production. These conditions can be met only in northern states, such as Wisconsin, Massachusetts, New Jersey, Oregon, and Washington. Cranberries are grown in marshes or bogs in these states. Kentucky's fluctuating winter and spring temperatures increase blossom losses due to frost, while high temperatures and humidity during the growing season make disease control difficult. These crops are not suitable for Kentucky.

GOJI BERRIES

Goji berries (*Lycium barbarum* and *L. chinense*) are deciduous woody shrubs in the Solanaceous family. Alternate common names include wolfberry, Tibetan goji berry, matrimony vine, Chinese boxthorn, and red medlar. Plants, which reach a height of 8 to 10 feet at maturity, come into full production after about four to five years. The red elliptical ½- to 1-inch berries, which are high in nutrient and antioxidant content, are being hailed as a "super fruit." A number of scientifically unsupported marketing claims link goji berry to various general health benefits, as well as reporting it as a cure for a range of medical conditions and diseases. Current-



Hardy kiwi

ly, most commercial goji berry production takes place in China. Fruit can be eaten fresh or dried; however, only dried or processed goji berries can be imported into the U.S. Domestic production could make a fresh product available. Several Kentucky growers have attempted goji production, but they have not been able to make this crop commercially viable.

Pros

Plants are relatively disease- and insect-free and, reportedly, easy to grow. Imported goji is a high value product. Since fresh goji is not available in the U.S., goji berries are viewed as a potentially lucrative niche crop. While the fresh product has a relatively short shelf-life, unsold fresh fruit could be dried or processed.

Cons

Despite the supposition that goji should grow well in Kentucky, little is actually known regarding the specifics of producing this crop commercially here. Plants can be variable in growth requirements, habit, yields and fruit quality and also have small thorns. Deer and rabbits will selectively browse on goji. Plants are tender and not adaptable for machine harvest. Labor costs of hand harvesting the small berries over the extended harvest period are likely to greatly impact profit; thus presenting a significant obstacle to goji becoming a commercially viable crop in Kentucky. Ripe fruits are noticeably herbaceous and lacking in sugar, limiting fresh sales potential, while unadulterated dried fruits can be bland.

HARDY KIWI

Hardy kiwi (*Actinidia arguta*) is a winter tolerant relative to the kiwifruit available at local grocers. Similar to kiwifruit in flavor and interior appearance, hardy kiwi is smooth-skinned and about the size of a large table grape. Fruit are produced on perennial climbing vines that may grow to 40 feet long. Other names include baby kiwi, wild fig, and wee-kee.

Pros

Hardy kiwi is a novel fruit

that could appeal to consumers willing to accept its exterior appearance. Plants are tolerant of winter temperatures as low as minus 25 degrees F. This crop is relatively free from disease and insect problems.

Cons

Hardy kiwi may not flower until the 3rd to 5th year and will initially produce a small crop. While plants can tolerate low winter temperatures, they are slow to acclimate to cold weather. Sudden drops in temperature can result in damage to vines.

In addition, plants are sensitive to late spring frost, which can kill flower-producing shoots. The earliness of bloom can limit insect pollen transfer from male to female plants, resulting in poor fruit set. Hardy kiwi production requires a substantial trellis system to support the vines. The cost of establishing a planting, along with its sensitivity to frost injury, make hardy kiwi a questionable crop for commercial production in Kentucky.

MULBERRY

Red mulberry (*Morus rubra*) is native to North America; however, black (*Morus nigra*), and white (*Morus alba*) species can also be grown here. These deciduous trees produce fruit that resemble a slender blackberry. Fruit is consumed fresh or used for jelly, wines, and desserts.

Pros

Mulberry trees grow well on a wide range of well-drained soils, including marginal lands unsuitable for other crops or tree fruits. Red and white mulberries, including interspecific crosses, are not sensitive to frost and can even be planted in frost pockets, though, variable tolerance among cultivars exists. Plants are easy to transplant and establish. Mulberries are tolerant of drought, and few diseases or pests cause serious problems.



White mulberry

Cons

Mulberries are often classified as an invasive, weedy, messy tree. White mulberry is reportedly the second most common weed tree in New York City. While few disease and insect pests plague mulberries, the fruit attracts large numbers of birds. The black mulberry is the least cold tolerant and earliest blooming of the three species and is only adaptable to the extreme southwestern end of the state. Trees require heavy pruning to maintain a suitable tree size for harvesting fruit.

Mulberries also present significant harvest challenges with labor-intensive picking. Mulberry stems may be objectionable to some consumers, even in processed foods.

NANKING CHERRY AND BUSH SOUR CHERRY

Nanking cherry (*Prunus tomentosa*) is also known as Chinese bush cherry, Manchu cherry, and Hansen's bush cherry. Plants reach a height of 9 to 15 feet, taking the form of a spreading shrub or small tree. Bush sour cherries (*P. cerasus* x) are shorter, generally 6 to 8 feet. Other species of bush cherries and their crosses are included in this group. Fruit can be quite variable because most plants are seedlings. Fruit size is generally from 1/4- to 1/2-inch across, but occasionally may be as large as 1 inch; color is typically red, but some cultivars of Nanking cherry are pink or white; and flavor can vary from tart to sweet. Fruit, which has a single cherry-like pit, may ripen from early to late summer. These cherries can be consumed fresh or used in juices, jams, wines, pies, and other value-



Nanking cherry

added products.

Pros

Nanking and bush sour cherries are hardy in Kentucky but are also early bloomers, though, this is somewhat offset by frost tolerance. They flower regularly, com-

monly setting full crops once bushes reach maturity in the third season. While susceptible to the usual diseases occurring on stone fruits, the Nanking cherry is less affected than other species in the genus (*Prunus*) and is also considered drought tolerant.

Cons

Nanking and bush sour cherries are more suitable as an ornamental or backyard fruit planting than for commercial production. The tiny fruit of the Nanking cherry are tedious to pit, are too soft for shipping, and have a short shelf life. The fruit, which is considered inferior to both commercial tart and sweet cherries, has little to no market potential. Bush sour cherries are very susceptible to leaf spot and bacterial canker diseases, severely diminishing fruiting potential without significant chemical and cultural controls.

Selected Resources

On the Web

- Growing the Goji Berry in Minnesota (Minnesota Department of Agriculture, 2010) <http://www.mda.state.mn.us/protecting/sustainable/greenbook/~media/Files/protecting/sustainable/greenbook2010/gb2010-vangkong.ashx>
- Hardy Kiwifruit (California Rare Fruit Growers, Inc., 1996) <http://www.crfg.org/pubs/ff/hardy-kiwifruit.html>
- Cranberries (Agricultural Marketing Resource Center, 2018) <https://www.agmrc.org/commodities-products/fruits/cranberries/>
- Minor Fruits: Hardy Kiwi (Cornell University, 2017) <http://www.hort.cornell.edu/fruit/mfruit/kiwifruit.html>

- Minor Fruits: Mulberries (Cornell University, 2017) <http://www.hort.cornell.edu/fruit/mfruit/mulberries.html>
- Mulberry (Agricultural Marketing Resource Center, 2016) <https://www.agmrc.org/commodities-products/fruits/mulberries/>
- Nanking Cherry – Home garden shrub (University of Illinois HortAnswers) <http://extension.illinois.edu/hortanswers/plantdetail.cfm?PlantID=365&PlantTypeID=8>
- Sustainable Production of Tibetan Goji Berry (*Lycium barbarum*) in Central Missouri: (SARE, 2008) https://projects.sare.org/sare_project/fnc07-649/ <https://projects.sare.org/project-reports/fnc07-649/>

In print

- Uncommon Fruits for Every Garden. Lee Reigh. 2004. Timber Press, Portland, OR. 308 pp.

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Photos courtesy of USDA Agricultural Research Service (cranberry harvest, Page 1, John Strang (hardy kiwi, Page 2), and Pixabay.com (white mulberry and Nanking cherry, Page 3.

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