

Persimmons, Asian and American

By Guy Ames
 NCAT Agriculture
 Specialist
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Both Asian and native American persimmons are suited to diversified, sustainable farms. American persimmon is widely adaptable in the eastern U.S., but markets are undeveloped. Asian persimmon is adapted to the Southwest and the South, and markets are developed but limited. Astringency, general culture, rootstocks, pests, and marketing are discussed.



'Yates' American persimmon. Photo: Guy K. Ames, NCAT

Introduction

Two distinct persimmon species are cultivated in the U.S. The indigenous American persimmon, *Diospyros virginiana*, is grown in USDA Hardiness Zones 5-9, and the Asian persimmon, *D. kaki*, is grown in Zones 7-10. Because of their general freedom from insects and diseases, both types are amenable to organic or low-spray production systems. Moreover, because of growing American consumer interest in locally grown foods, persimmons—especially American persimmons in their native range (most of the eastern U.S.)—may have a place on some diversified farms, especially those that direct market.

Though it is accurate to say that the American persimmon is “cultivated,” since there are a few small orchards in the eastern U.S., it is not yet a commercially important crop. But perhaps it should be since it has a superb nutritional profile (USDA, 2009) and contains, like many fruits, phytochemicals with various health benefits. It is richly flavored and very sweet, with a sugar content exceeded only by dates.

In contrast, the Asian persimmon has been successfully commercially grown in the West, with most production centered in the San Joaquin Valley of California, for around 100 years. Accordingly, the University of California has the most and best information about commercial

cultivation. Start at <http://fruitsandnuts.ucdavis.edu/pers.html> for more and detailed information. For more information about growing Asian persimmons outside of California, read on.

The Astringency Problem

Because it is key to successful market acceptance of both types of persimmons (Asian and American), a short discussion of the astringency problem is appropriate at the outset.

Public perception of the American persimmon has been sullied by the all-too-common experience of eating an unripe astringent persimmon. All American persimmons and some varieties of Asian persimmon share this problem caused by high concentrations of tannins in the unripe fruit flesh.

Related ATTRA publications

Tree Fruits: Organic Production Overview

Upon eating an unripe American persimmon, Captain John Smith of Jamestown Colony fame wrote, “[It] will draw a man’s mouth awry with much torment.” However, when properly ripened, many think that the persimmon deserves its genus name, *Diospyros*, or “food of the gods.”

As mentioned above, even many of the Asian cultivars produce fruit that is astringent before ripening at home by the end consumer. (Let it sit on a table until soft or place fruit in a plastic bag with an apple slice for three days.) Not knowing about proper ripening of fruit, unwitting consumers could easily be discouraged from future purchases of astringent-type persimmons. Even Asian Americans, presumably knowledgeable about the differences,



‘Yates’ American persimmon. Photo: Guy K. Ames, NCAT

Astringency in Asian Persimmons

Nonstringent Asian cultivars include Fuyu, Goshu, Izu, Jiro, Suruga, Chocolate, Maru, Hyakume, and Gailey.

Astringent types include Saijo, Tamopan, Tanenashi, Tsuru, Fuji, Hachiya, and Hiratanenashi.

Source: Ryugo, 1994

showed a preference for nonstringent cultivars in at least one study (Preston and Shanks, 1991).

In short, because of the potential astringency of unripe Asian or American persimmons, grower-marketers must be very careful to pick and market only ripe fruit, or, at the very least, provide consumers with information about how to properly handle unripe astringent varieties. (See related information in the **Marketing** section below.)

Culture

Site Selection. Persimmons generally bloom late enough in the spring to avoid spring frosts, so site selection does not have to emphasize air drainage to the same degree that other early blooming tree crops require (e.g., peaches). Persimmons grow well on a wide range of soils, although they grow best on loamy, well-drained soils. As with other fruit trees, a soil pH of 6.0 to 6.5 is optimal for tree growth.

The American persimmon can be found growing wild in wet, droughty, clayey, rocky, and sandy soils. However, remember that such wild trees have had the advantage of being grown from seed and are, therefore, sporting a taproot and have not suffered the trauma of transplanting. Transplanted nursery-grown stock will not have the same advantage. Therefore, if planting a new orchard—rather than collecting fruit from wild, established trees—the prudent orchardist will pick a site with, at the very least, good soil drainage.

Planting. Rootstock selection is an important pre-planting consideration for Asian persimmons (but not so much for American types because all American persimmons are grafted onto American persimmon seedling rootstock). Asian persimmons for the eastern U.S. are generally grafted onto seedlings of the American persimmon *Diospyros virginiana*. In the West, Asian persimmons are usually grafted onto *D. lotus* rootstock.

The main advantage of using American seedling rootstock for the Asian persimmon when planting

Rootstock Summary:

- American persimmon cultivars are best grafted onto American persimmon seedlings.
- Asian persimmons for the eastern U.S. should be grafted onto American seedlings.
- Asian persimmons for the western U.S. should be grafted onto Asian roots.

in the East is that they tolerate excessive moisture and drought quite well; however, they are prone to suckering, which needs to be pruned out annually. (Otherwise, the suckers from the rootstock could “overgrow” and out-compete the grafted tops.) Asian cultivars grafted onto *D. virginiana* rootstocks also show a lack of uniformity of tree vigor and size.

Like all fruit trees, persimmons require full sun to assure good tree and fruit growth, as well as fruit bud development. Trees should be spaced 15 to 16 feet apart within the rows, and rows need to be far enough apart to accommodate mowing, harvesting, etc.

Fertilization. Persimmons have no special fertilization requirements, but they will benefit from a general fertility regimen as described in the ATTRA publication *Tree Fruits: Organic Production Overview* (www.attra.ncat.org/attra-pub/fruitover.html). Again, in California, contact your county Extension agent if you have specific concerns regarding soil fertility.

Insects and Diseases. In the San Joaquin Valley, the center of commercial Asian persimmon production, pests are more common and significant than elsewhere. Generalist feeders—pests that attack a wide range of plants, such as scale, aphids, and mealybugs—are occasionally troublesome but are relatively easy to control organically with dormant oils. Photographs of these and other pests, as well as control information, appear at www.aaie.net/IPMinfo/PersimmonIPM.pdf.

There is a persimmon trunk borer in the eastern U.S. that will tunnel into the trunk of young trees near the soil line or at the grafting scar (Parker, 1993). If detected early, this insect can be removed with a sharp knife before extensive damage is caused to the tree. Simple exclusion by wrapping the trunks with window screen should

also work (with the warning that growers need to make sure they don't inadvertently girdle trees).

Another insect pest, at least in North Carolina and presumably the rest of the Southeast, is the persimmon phylloxera, which is a small insect that feeds on persimmon leaves (Parker, 1993). Although the leaves may be deformed by the feeding insect, control measures are usually not recommended.

Acremonium diospyri is a fungal pathogen of the American persimmon that has been researched as a biocontrol of young persimmon seedlings in Oklahoma rangeland (Butt et al., 2001). It is not noted in any publication as a serious impediment to culture of persimmon, and nothing is registered for control. It appears as black spots on the leaves.

Water Relations. Persimmon trees will withstand drought, but fruit size and yield will be reduced. Also, adequate moisture is required to produce sufficient shoot growth and the formation of flower buds for the next year's crop. During extended dry periods, irrigation should be provided to the trees on a weekly basis.

Pruning. American persimmon trees in the wild can grow to 70 feet tall, though that is unusual. Still, in an orchard situation, trees could easily get too tall to manage, so a modified central leader approach is recommended for both Asian and American persimmons (see any of many books or websites such as <http://edis.ifas.ufl.edu/mg345> for a description of the modified central leader). Otherwise, pruning for balance, light penetration, and removal of damaged limbs is the rule of thumb. Probably the most important thing to remember is that fruit is borne on shoots from -year-old wood, so periodic pruning, which induces new growth, can be a beneficial practice.

Pollination. The American persimmon is dioecious (i.e., individual trees are either male or female). Generally this does not present problems for growers in the native range because of the presence of male trees in nearby woods. Sometimes, seedless fruit is produced where male trees are not present, but bigger and better flavored fruit is produced if pollinated (Reich, 1988). If trying to grow American persimmons with no native persimmons near, growers will have to plant a male tree to get consistent crops from most named American cultivars (though there are some, including Meader, that will set

Like all fruit trees, persimmons require full sun to assure good tree and fruit growth, as well as fruit bud development.

For beginning Asian persimmon growers, especially outside California, a prudent approach to a somewhat confusing pollination situation would be to stick with cultivars that are known to produce fruit without cross-pollination. These include Fuyu, Jiro, Hanagoshō, Korean, and Hachiya (of these, Korean and Hachiya are astringent varieties and require ripening by the end consumer).



'Hachiya' Asian persimmon. Photo: Rex Dufour, NCAT

seedless fruit without a male tree nearby). A named male cultivar, Williams, is often sold as a pollinizer tree by nurseries that sell persimmons (see the nursery list at the end of this publication).

Asian persimmon trees may be male (staminate), female (pistillate), or both, but pollination is not essential for fruit set. Ample crops of seedless fruits can be obtained without pollination. If male flowers are present in the orchard, seeded fruits will be produced. Some cultivars will develop some fruit to maturity without pollination, whereas other cultivars drop their fruit prematurely or fail entirely to set without pollination (see www.crfg.org/pubs/ff/persimmon.html). Seedless fruits are preferred by some customers, but other consumers claim that seeded fruits have better flavor (Ryugo, 1994).

Marketing

As mentioned in an earlier section, the astringency of the fruit can be such a powerful disincentive to eating persimmons, it is important that the marketer either sell only properly ripened fruit or provide good information to the end consumer about how to ripen the fruit properly at home.

Packing. The fruit of the American persimmon when ripe is very soft, so extreme care must be taken when packing for market, or you will be trying to sell flats of mush. Stacking more than a few fruits on top of each other will lead to an unsalable product.

Asian persimmons should be packed for market when the cultivar's full color has developed. The nonastringent cultivars can be shipped and eaten while still a little firm, but they are still prone to bruising. The astringent types are marketed while firm because by the time they are full-ripe and nonastringent, they

often need to be eaten with a spoon. So, careful handling is the rule.

Direct Marketing Ideas. Because only folks with a rural background are likely to have had any exposure to American persimmons—and many of those will have had a bad experience (probably initiated by an older sibling or someone else “in the know” who convinced the person to bite into one as a practical joke)—the challenge and opportunity will exist to introduce a clientele to something new that can be extremely delicious and nutritious. Perhaps signage that translates the Latin genus name would be a good start: “*Diospyros* = *Food of the Gods!*”

Another marketing idea helpful for all kinds of direct-marketed crops is to provide recipes and other ideas for their use.

American persimmons, most often gathered from the wild, do sometimes show up at farmers markets in their climatic range in autumn (Lehman, 2010 and author's personal experience), so persimmons do have at least some minor commercial appeal already.

Relatively small amounts of frozen and canned pulp do get sold (go to www.persimmonpudding.com for sources and ideas on processing the persimmons). Jerry Lehman and other persimmon aficionados in the Midwest are leading the way to commercialization of the American persimmon and held a conference in Terre Haute, Indiana, in 2002 to that end. The information from that conference and much more about persimmons appears at www.persimmonpudding.com.

Another source for marketing ideas is the Mitchell Persimmon Festival (www.persimmonfestival.org) in Mitchell, Indiana, which boasts persimmon

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pudding contests, persimmon fruit taste competition and more.

Commercial Possibilities for Asian Persimmon Culture Outside California. Up to the present, commercial Asian persimmon culture has been almost exclusively a California enterprise, but growing conditions in much of the Deep South should be conducive to Asian persimmons, and the widespread survival and success of Asian persimmons as dooryard trees is at least partial proof of that. The upper- and mid-South regions are probably too risky for commercial production, as the Asian persimmon can be killed to the roots by temperatures near 0°F and suffer significant damage any time temperatures dip below 20°F.

Another encouraging factor for potential growers outside California is the growing populations of ethnic Asians in most American towns and cities (Preston and Shanks, 1991). Until apples were introduced, the Asian persimmon, with



'Fuyu' Asian persimmon. Photo by Rex Dufour.

more than 1,000 named cultivars, was the most widely grown fruit in China and Japan. So, with growing populations of ethnic Asians in the U.S., there should be a parallel growth in marketing possibilities.

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Lehman, Jerry.
7780 Persimmon St.
Terre Haute, IN 47802-4994
JWLehman@aol.com

Lehman is the chair of the North American Fruit Explorers Persimmon Interest Group, an experienced persimmon grower, and a proponent of persimmon commercialization.

North American Fruit Explorers (NAFEX)
www.nafex.org

Persimmonpudding.com

This site is run by Midwest persimmon growers (including Lehman) and is a link to all things related to American persimmons: history, culture, songs, uses, recipes, festivals, growers, nurseries, etc.

Nurseries

One Green World
28696 S. Cramer Rd.
Molalla, OR 97038-8576
Toll-free: 877-353-4028
503-651-3005
www.onegreenworld.com

TyTy Nursery
4723 U.S. Hwy. 82 W.
P.O. Box 130
TyTy, GA 31795
229-388-9999
www.tytyga.com

Raintree Nursery
391 Butts Road
Morton, WA 98356
Toll-free: 800-391-8892
www.raintreenursery.com

Nolin River Nut Tree Nursery
797 Port Wooden Rd.
Upton, KY 42784
502-369-8551
www.nolinnursery.com

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By Guy Ames
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Amy Smith, Production

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