Oriental Persimmons Show Promise

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Oriental persimmons, *Diospyros kaki* L. f., being test grown at the U. S. Plant Introduction Station, Chico, California, show a potential as commercial varieties. Although introduced more than 30 years ago from China and Japan by the U. S. Department of Agriculture, many of these selections have not been widely grown or tested in this country.

Interest in new varieties is somewhat limited in the United States since the persimmon is only a minor crop. Promising new selections, however, usually merit testing as they could prove more widely adaptable than older varieties. Also, better selections could possibly expand existing markets by providing the consumer with a wider choice of astringent and non-astringent types.

The popularity of the persimmon in Asia (its native home) is at least as great as, if not greater, than that of the apple in this country. Its success in that part of the world may be due, in part, to the wide range of varieites produced that are used for special purposes. Just as we have apples for cooking, canning, and fresh use, the Orientals have persimmon varieties for drying and eating out-of-hand.

It is not unusual for plants native to eastern Asia to be native also to the eastern United States. The persimmon is no exception. In this country it is represented by *Diospyros virginiana* L., a small fruited species that is usually seeded, and astringent until soft-ripe. By comparison, fruit of *D. kaki* has better size, quality, and appearance; and this species also contains varieties that are nonastringent.

At one stage in their evolutionary development, the fruit of *D. kaki* and *D. virginia* may have been quite similar and probably resembled *D. virginiana.* During the last 1,000 years, however, while the American native persimmon remained mostly uncivilized, its Oriental cousin became domesticated and grew up with what might be considered 'all of the cultural advantages.' Not the least of these are many generations of seedlings from which improved types were selected.

It is not surprising that a fruit cultivated since antiquity has found its way into many temperate zone countries. Although the records are obscure, trees were reported to be growing in the United States as early as 1828. The first date of introduction that is generally recognized, however, is 1856, when Commodore Perry obtained seed from Japan during his visit to that country to promote trade relations.

Seed propagation was successful and eventually led to the first introduction of grafted varieties from Japan by the U. S. Department of Agriculture in 1870. Although many trees in this shipment died, two of our more important commercial varieties, Hachiya and Tanenashi, were among the survivors. These were distributed to the Gulf states and to California.

During the years that followed, many additional importations were made from the Orient by both the U. S. Department of Agriculture and private concerns. These introductions were widely distributed and proved adaptable in the warmer states.

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After the turn of the century, introduced persimmon varieties and selections were sent to the newly established U. S. Plant Introduction Station, Chico, California, for evaluation and to develop cultural information on what appeared to be a promising new crop.

The Chico Station, which released persimmons as early as 1917, became a source of new varieties for the developing industry. During the early 1930's there were more than 2,000 acres of persimmons in California, more than 60 varieties, and 200 seedlings under test at Chico.

During the depression years the industry declined, interest in persimmons waned, and the variety collection at Chico was systematically reduced by gradually eliminating the inferior types.

The collection of sixteen standard and new varieties that now remain represent some of the better selections that have been introduced and grown at Chico. Descriptive data on this collection, which is being maintained as a source of germ plasm for variety adaptation studies, breeding experiments, and hardiness trials, are presented in this report.

Fuyu (P.I. 72662): Medium-to-small size, oblate shaped fruit with attractive orange-red skin and non-astringent flesh. The flesh is deep orange and contains many small specks. Fuyu ripens in mid-November and is noted for its complete lack of astringency, even when firm.

Giboshi (P.I. 13837): Medium size, round-to-conical shaped fruit with dull orange skin that tends to blacken on the exposed side.. The flesh is orange-yellow and astringent when not seeded. When seeded, the flesh is non-astringent and has a dark color caused by numerous small brown specks. The fruit ripens in mid-November and ranges in quality from fair to very good. In some seasons this variety produces a very light crop.

Hachiya (P.I. 13823): Large, oblong, conical shaped fruit with attractive orange-yellow skin. The flesh is deep yellow, and astringent until fully ripe. Hachiya has excellent quality and is grown commercially in California. It ripens during the latter half of October.

Hana Fuyu (P.I. 83709): Is one of the more promising persimmon introductions. The large roundish-oblate shaped fruit has an attractive reddish-orange skin color. The flesh has good quality, being sweeter than Fuyu, and is non-astringent. When fully ripe, Hana Fuyu has the deepest red color of any of the persimmons examined at Chico. It ripens in the latter part of October. In some seasons it sets a light crop.

Honan Red (P.I. 44108): Small size, roundish-oblate fruit, with attractive reddish-orange skin. Mild, sweet flavor of fair-to-good quality. Astringent until soft-ripe. Usually seeded. Heavy cropper. Fruit ripens mid-November.

Kawabata (P.I. 71946): Large red-orange, oblate, conical fruit, of good quality. Yellow flesh, lightly speckled with brown. Non-astringent, usually seeded. Some fruits have a constriction around the base like Tamopan. Ripens latter part of November.

Kubo (P.I. 32871): Medium size fruit of conical shape that resembles Hachiya except for being smaller. Skin orange-yellow; red when soft. Flesh light orange of fair-to-good quality, but a little stringy. Usually contains several seeds and is astringent until soft-ripe. Ripens late October.

Lantern (P.I. 91182): Medium-to-small sized, orange-yellow fruit, round-oblate in shape. Flesh is yellow-orange, usually seeded, astringent until soft-ripe. Poor-to-fair quality. Ripens mid-November.

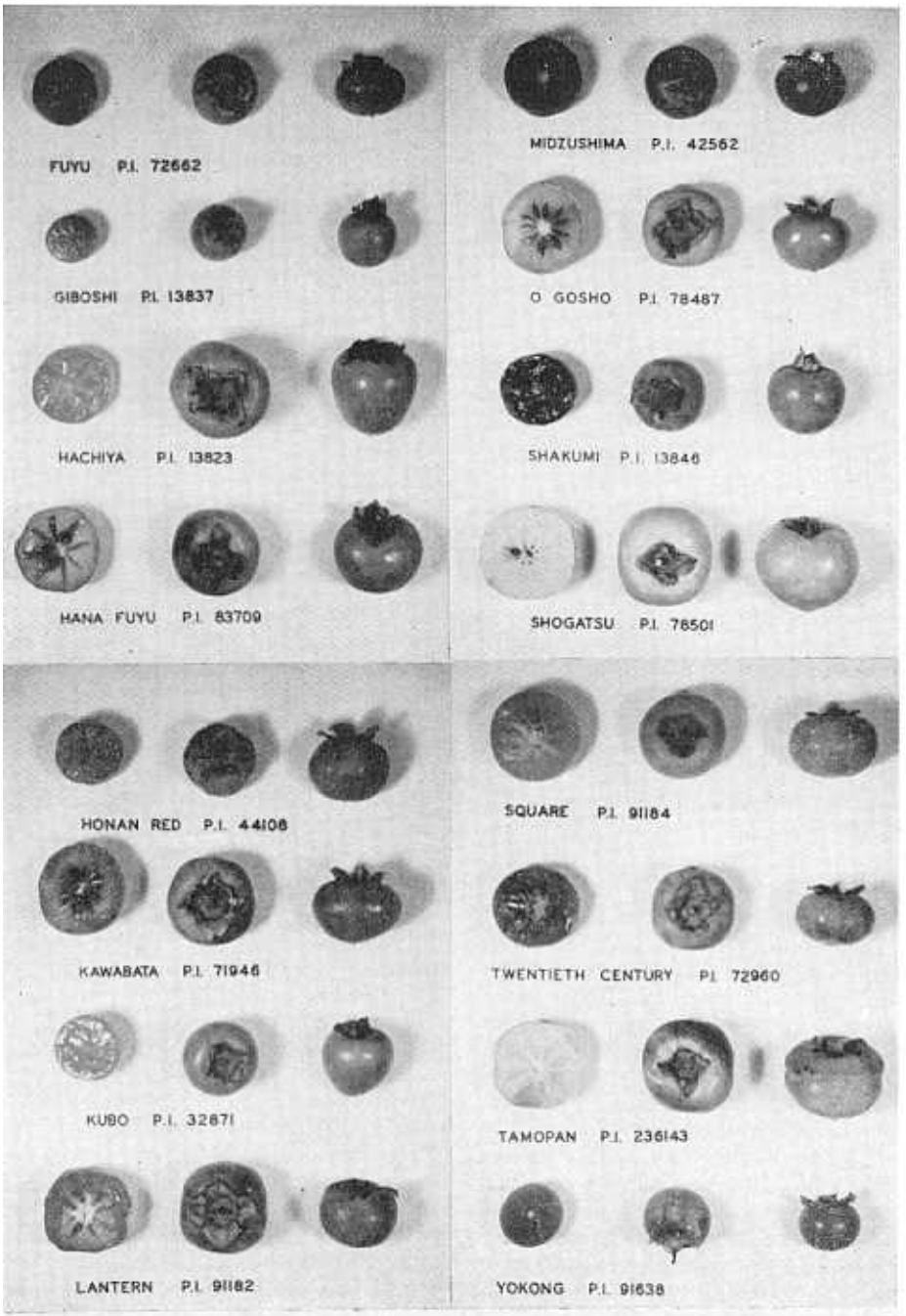

Fig. 1. Oriental Persimmon varieties growing at the U.S. Plant Introduction Station, Chico, California.

Midzushima (P.I. 32562): Medium-to-large size with orange-yellow skin. Roundish-oblate in shape. Flesh is yellow, heavily speckled with brown, giving an overall reddish-brown appearance. Non-astringent when seeded; fair-to-good quality. Ripens early November.

O Gosho (P.I. 78487): Medium-sized, conical-to-oblate fruit with thick, tough, orange-yellow skin. Flesh is light yellow with brown flecks, non-astringent with fair-to-good quality. One or more seeds usually present. Ripens mid-November.

Shakumi (P.I. 13846): Large, roundish-oblate, with dull reddish-orange skin. Flesh is non-astringent when seeded, and contains many brown specks, giving a dark orange appearance. Quality is fair-to-good. Ripens mid-November.

Shogatsu (P.I. 78501): Large, oblate, conical shaped fruit with orange-yellow skin. Outer layer of flesh is orange-yellow, with slight astringency. Flesh in area of seeds contains many brown specks and is non-astringent. Overall quality is fair-to-good. Ripens early December.

Square (P.I. 91184): Small-to-medium size, oblate shaped fruit having reddish-orange skin. The flesh is orange, astringent until soft-ripe, and poor in quality. The fruit usually contains seeds and ripens in mid-November.

Tamopan (P.I. 236143): Large size with distinctive shape, having a constriction about one-third the way down on the fruit. Skin color light orange; astringent until soft-ripe. Ripens in November.

Twentieth Century (P.I. 72960): Medium-to-small size. Oblate in shape, quadrangular in cross section. Skin is orange-yellow. Flesh is orange with dark specks, non-astringent with fair-to-good quality. Ripens mid-November. This variety is almost identical to Fuyu.

Yokong (P.I. 91638): Medium-to-large size, roundish-oblate, with reddish-orange skin color. Flesh is reddish-orange, astringent until soft-ripe, and seeded in some seasons. Quality fair-to-good. Has good size, shape, and color. Ripens early November.

Fruit Breeding at John Innes Institute

The John Innes Institute, Norwich, England, has been breeding to improve fruits since 1910. A. G. Brown recently reviewed the fruit improvement efforts of the Institute in the Journal of the Royal Horticultural Society. Some of the significant points which he reports are as follows:

Apple: For a long time, the emphasis has been on developing varieties with resistance to scab and mildew. The newest introduction is 'Merton Joy,' an attractive, productive apple of Sept.-Oct. season, and almost completely free from mildew. 'Merton Ace' has just been named, an early, well colored variety which is not yet available.

Plum: Efforts are being made to develop high quality plums that are self-fertile. Such a variety, named 'Merton Gem,' will soon be released. It is a light, golden yellow plum with a bright red blush.

Cherry: Objectives in breeding are resistance to bacterial canker, self-fertility, and dwarfing rootstock. The newest introductions are 'Merton Late,' which ripens in early September, and the variety, 'Merton Crane.'

Strawberry: Efforts are being made to develop varieties suitable for canning, ones with dark flesh for yogourt, and others for mechanical harvesting. The newest variety, still not released, is 'Merton Ruby,' a late, mid-season, productive variety.