Quince Cultivars from Western Turkey

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Although still grown to a limited extent in some western and southern European countries, quince growing has suffered a steady decline in North America since the early years of this century. In his book 'Quince Culture' Meech (2) records 15 cultivars known in 1888 when quinces were grown in plantations, especially in the New England states. Attractive quince fruits do not have the flavour and texture qualities of modern pear and apple cultivars. Coupled with susceptibility to many diseases, this has contributed towards the demise in popularity of this fruit in North America.

Nowadays, the quince is important mainly because of its wide-spread use as a dwarfing rootstock for pears. Quince A, a clone selected at East Malling from the French Angers quince, is commonly used for this purpose. Improved clones have also recently been selected by Broissier (1) at the Angers Plant Research Station in France from a collection of over 300 quince clones obtained from different areas in southern Europe. Such a large collection emphasises the current interest of French horticulturists in the quince.

Quinces in Turkey

Quince is native to Turkey, possibly Anatolia, or was introduced many centuries ago either from Iran or Transcaucasia to the east, or from Greece. Although its exact geographical origin is unknown, quince has been cultivated in Turkey for several thousand years. The continued existence of many indigenous tree fruits, including quince, is now threatened in Turkey and elsewhere by the rapid, wide-spread distribution of modern, high yielding imported cultivars (3).

Turkish plant introduction services are located in Izmir, at the Agricultural Research and Introduction Center; founded in 1964 with assistance from the U.N. Special Fund and F.A.O. In addition to plant introduction activities, this center is responsible for the collection, evaluation and subsequent distribution of germ plasm of fruits and vegetables indigenous to Turkey.

Several of our important fruits originated in Turkey or adjacent areas in the Caucasus and further east. The survey and collection of some of these fruits, as wild species, old or locally developed cultivars, started in 1965. Cherry and mahaleb, walnut, almond, pear and apple were some of the

Fig. 1. 'Yerli Ekmek,' one of the many forms of the cultivar 'Ekmek' in the Aegean region.

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fruits collected. In 1967* collections of quince were made in the Marmara and Aegean regions, in the northwestern and western parts of the country, respectively. These areas, together with the much colder, northcentral region around the capital of Ankara, constitute the main regions of Turkish quince production.

Quince is quite an important tree fruit crop in Turkey. It is estimated that over 30,000 tons of fruit are produced annually. 'Ayva' is the Turkish word for quince and the names of towns or villages of Ayvalik and Ayvacik, meaning 'with quince,' indicate the importance of this fruit in certain local areas.

Mostly used stewed as a dessert called 'composto,' the fruit become an attractive pale pink colour when cooked. Grit cells are present in the fruit of many cultivars. However, this does not limit their use as fresh fruit, for which some cultivars are particularly esteemed. Perhaps not to everyone's palate, the crisp, juicy, astringent flesh is most appreciated when fruits are perfectly mature. If over-ripe, they can be soft and wooly, or dry, fibrous, and coarse in texture.

In many areas, isolated trees are found growing between small cultivated fields, often in the hedgerows, and generally given little attention. Particularly in the Marmara region, south of Istanbul, quinces are grown as orchard trees up to about fifteen feet in height. However, whether due to the growth habit of particular cultivars, or pruning methods used, smaller trees are much more frequent. The Turkish system of pruning is to severely reduce vigorous shoots produced during the long growing season, to encourage fruit development on the lower spurs.

Trees are seedlings, or have been vegetatively propagated from hardwood cuttings. The probability of different origins causes problems in the collection of specimens representative and typical of different cultivars. Fruit characteristics of some showed considerable variation between individuals in a population sample of supposedly the same cultivar Nomenclature is further confused by the use of synonyms, by seedlings being given a cultivar name, and by the vegetative propagation of mutations that have occurred.

Fruit were collected from individual trees in several different areas during 1967. Seedlings raised from the seed of these fruit will be propagated from hardwood cuttings, and will be grown under uniform conditions at the Izmir Center. Where possible, present and future accessions will be grouped as identifiable cultivars. Outstanding, high-yielding clones giving good quality fruit can be selected, then propagated and distributed for future planting. The value of these quince accessions as pear rootstocks, in Turkey and elsewhere, and as virus indicator plants, will also be evaluated. Brief descriptions of twelve cultivars, based on collections obtained to date and arranged according to fruit size, are given below.

Large Fruited Cultivars

'Havran': very large, ovate-pyriform fruit with a long, oblong neck, shallow cavity and deep basin; creamy-white flesh with characteristic sub-acid flavour. Size 14.7 x 10.8 cm. Mean fruit weight of this cultivar was 815 gm, and the weight of some fruits exceeded one kilogram (2.2 lb).

'Tekes': large or very large, obtuse-ovate slightly pyriform fruit, tapering towards both ends and often truncate; deep yellow; cavity very shallow or absent; basin shallow-medium; pale creamy-yellow flesh, often juicy and good quality. Late season. Mean fruit

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weight approximately one pound. Size 11.0 x 9.9 cm.

Medium-Large Fruited Varieties

'Gördes': obvate-obtuse pyriform and irregular fruit with unequal sides, truncate at apex; bright yellow with heavy pubescense; cavity very shallow; basin wide, medium-deep; pale cream flesh, gritty and slightly sweet. Midseason. Culinary use. Size 10.1 x 9.0 cm.

'Seker' or **'Sekergevrek'** (sweet or crackly sweet); obtuse-ovate slightly pyriform irregular fruit with unequal sides; greenish yellow to yellow; cavity shallow; basin medium depth and furrowed; creamy lemon flesh, gritty and coarse. Midseason. Size 9.8 x 8.9 cm.

'Bencikli' (meaning possessing small spots): rounded, obtuse-obovate turbinate fruit with prominent ribs; yellow and pubescent with conspicuous dots; cavity medium-shallow; basin wide, medium depth; pale whitish-cream flesh, sweet and slightly juicy. Late season. Dessert use. Size 8.6 x 8.7 cm.

Medium-Sized Fruit

'Ekmek' synonyms 'Ada' (island) and 'Kulu': The most popular quince cultivar in western Turkey, 'ekmek ayvasi' means a juicy quince, and the cultivar name means bread. Fruit sampled were very variable, with some not true-to-type.

Medium or small fruit, very variable; obovate-obtuse-pyriform or ovate-pyriform with long neck; deep yellow, dull surface with many dots; cavity medium-shallow or deep; basin very shallow or deep; pale creamy-yellow flesh, gritty and soft. Midseason. Culinary use. Size variable, approximately 8.1 x 8.2 cm.

'Cukurgöbek' (deep stomach): the unusual name probably refers to the very wide, characteristically deep basin, often furrowed and rough.

Roundish, obtuse-pyriform fruit with unequal sides and slightly ribbed; pale yellow with many small dark brown dots; shallow cavity and deep, very wide basin; pale creamy-yellow flesh, juicy and sub-acid. Late season. Dessert use. Size 8.1 x 8.5 cm.

'Esme': roundish, obtuse-ovate fruit with unequal sides, uniform; deep yellow, very smooth surface; cavity shallow and medium basin very wide and shallow; pale creamy-lemon flesh, hard and astringent. Midseason. Size 8.9 x 8.3 cm.

Medium-Small Fruited Varieties

'Istanbul': globular to obtuse-ovate-pyriform fruit with a very short thick neck and wide ribs; pale yellow with many small dark brown dots; cavity medium depth; smooth medium-shallow basin; pale cream flesh gritty at core, hard and coarse grained. Midseason. Size 7.4 x 7.8 cm.

'Limon' (Lemon) or **'Agustos'** (august): the main cultivar name refers to the lemon fragrance of mature fruit but, this characteristic was not noted in all fruits sampled from this rather variable cultivar.

Fruit small or medium, very variable; globular-oblate or obovate-obtuse-pyriform with a thick neck;

Fig. 2. Pyriform fruit of the cultivar 'Gördes.'

greenish to pale yellow with heavy pubescence; very deep or medium-shallow cavity usually furrowed; basin of variable depth; pale cream flesh, gritty at core, coarse grained and astringent. Early to midseason.

'Tas' (stone) or **'Kis'** (winter): these cultivar names appear to be used synonymously to describe fruits of a very late maturing cultivar. 'Stone' refers to the hardness of the fruit while 'winter' indicates how easily these fruits can be stored, under very primitive conditions, to provide fruit as late as December and January.

Fruit small or medium size, variable; obtuse-ovate, slightly pyriform or obovate - obtuse - pyriform, unequal sides; greenish yellow or deep yellow and dull with heavy pubescence; cavity shallow or slight depression; basin shallow-medium; whitish-cream or creamy-yellow flesh, gritty at core, dry, coarse-grained and slightly sweet. Late season. Size variable, approximately 8.5 x 7.5 cm.

Small Fruited Variety

'Midilli': the cultivar name refers to the island of Mitilini, off the Aegean coast of Turkey, where this cultivar may have originated. Small uniform fruit, roundish, obtuse-ovate and truncate at both ends; bright yellow, pubescent; cavity wide and shallow; basin very wide, medium to deep; whitish-cream flesh, gritty at core, soft, aromatic and slightly sweet. Late season. Dessert use. Size 7.4 x 7.0 cm.

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Varieties of Western Sandcherry *(Prunus besseyi)*

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Professor Niels E. Hansen was the pioneer in Western Sandcherry selection at the South Dakota Experimental Station at Brookings, South Dakota, where he was head of the Department of Horticulture at South Dakota State College for 42 years. Professor Hansen had been introduced to the Western sandcherry by the famous botanist, Professor Charles E. Bessey, whose name the sandcherry bears. Hansen was taught by Professor Bessey at Iowa State College, at Ames, where he obtained his degree in 1887.

The Western sandcherry is one of the Great Plains' most important native fruits. It is found westward from Dakota, Iowa and Kansas to Colorado and Utah and north to Manitoba. The Sioux Indians and early settlers used it extensively. The bush seldom grows more than four or five feet tall. It fruits in clusters all along the branches, which are generally stolons shooting from the ground. The fruit, which is cherry-size, is often borne in immense crops; and, although many are sour and inedible, the berries are good eaten fresh, or for jams and jellies. On some bushes, the fruit have large pits; but on others, relatively small pits, such as in a sweet cherry. *Prunus besseyi* grows under extremely sereve conditions of drought and cold, being hardy at 50° to 60° below zero; and it seems to be completely disease resistant.

Professor Hansen's selection work at the South Dakota Experiment Station was carried on for many years

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