

SUITABILITY OF CORYLUS COLURNA FOR STREET TREE USE

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The native range of *Corylus colurna* is reported to cover a broad area of Asia and Europe from China in the east to the Balkans and Southern Hungary.

The first record of the species' introduction into western Europe reveals that seeds collected near Constantinople were sent to Vienna in 1582. When introduced to England in 1665, it was known as the Constantinople nut. I was not able to determine exactly when it was introduced to North America, but it was sometime during the early colonial period.

Though it has not become a commonly used plant, it has been grown in botanic gardens and arboreta throughout the northeastern U.S. and Canada. Thankfully, somewhere along the line its common name was changed to Turkish hazel, or Turkish filbert.

CHARACTERISTICS

Because of some outstanding characteristics a number of prominent horticulturists have recently recommended the expanded use of Turkish hazel as a street tree. Bill Flemer, L. C. Chadwick and Jim Evans recommended its use in METRIA 2, the second technical conference of the Metropolitan Tree Improvement Alliance. Gary Koller and Mike Dirr listed it in their article "Street Trees for Home and Municipal Landscapes," published in *Arnoldia*. Ann Rhoads, Paul Meyer, and Robert Sanfelippo of the Morris Arboretum recommended its use in their publication, "Trees for Urban Parks." It is also listed in "Street Trees for Southeastern Pennsylvania," which was compiled by a committee representing arboreta, municipal arborists, and The Pennsylvania State University's Department of Horticulture.

I've been very excited about this tree ever since Phil Kozel, one of the great teachers of plant materials, introduced me to it 10 years ago on the Ohio State Campus. When I saw the pair of Turkish hazels growing there, I thought they had to have been asexually propagated. How else could they end up so perfectly shaped and matched? But they weren't, and none that I have seen since have been. Their form is almost too good to be true to come from seedling populations - but it apparently does. Even when young it has good form.

Now what are its characteristics that make people think it should be suitable for use along city streets? First, its size is almost ideal for street use. Though it will grow to 80 feet in its native range, experience in North America suggests that 40-50 feet is more realistic. Its spread is estimated at 20-30 feet. Trees planted in the Secrest Arboretum in Wooster, Ohio in 1927 are now 50 feet tall, having averaged nearly a foot increase in height per year. The largest tree in the Arboretum is now 50 feet tall with a circumference of 4 feet. At the Dominion Arboretum in Ottawa, Canada, 80-year old trees were only 30-35 feet in height. A 30-year old tree growing in the Royal Botanic Gardens in Hamilton, Canada was 20 feet in height with a spread of 12 feet. Based on these reports, I would say Turkish hazel has a slow to medium growth rate, depending on the zone in which it is grown.

Turkish hazel has a consistently uniform pyramidal form. Though it will not produce a high arching canopy, neither will it interfere to any extent with adjacent structures. The branches form strong right angles with the trunk. This limits interference with pedestrian or vehicular traffic and provides strength that resists damage from wind or ice. Very little pruning or structural maintenance should be required.

Reference books list Turkish hazel as hardy to zone 4, but it has been reported to be thriving in the Minneapolis, Minnesota area where winter lows may reach -30°F (zone 3). It also tolerates dry, alkaline soils well.

The foliage of Turkish hazel is dark green in the summer and very resistant to scorch. Even in hot, dry, exposed sites, it maintains its color well. Its fall color, a poor yellow-green, is not one of its attributes. Most reports state that the foliage is free of insect and disease problems, but one recent paper stated that it is attacked by Japanese beetles.

In addition to its regular form, the bark of Turkish hazel gives it a very interesting winter character. As the tree matures the gray-brown bark develops a scaly characteristic, and as the scales fall, a rich orange-brown inner bark is exposed.

In early spring, the staminate catkins of Turkish hazel elongate into loosely dangling clusters of tassels that give the otherwise bare tree a decorated appearance. Though male and female flowers are borne on the same tree, the reports on Turkish hazel grown outside of its native range indicate that it does not set a heavy crop of fruit. This is a definite plus for the tree since the fruits could be quite messy in large numbers.

PROPAGATION AND CULTURE

I have not been able to find anything written specifically on the propagation of *Corylus colurna*. The genus *Corylus* is generally propagated by seed. The seeds require chilling before germination will occur. Most nurseries fall sow the seed, though stratification and spring sowing will work. If collecting seed, start as soon as the edges of the husks begin to turn brown. Hazel nuts are rapidly collected and eaten by many animals and birds even before fully mature.

In the nursery, Turkish hazel can be grown in a variety of soil types, but a well-drained loam is preferable. It is adaptable to a wide range of pH values. Because of its natural pyramidal form no corrective pruning is necessary other than limbing it up to provide pedestrian clearance.

It is reported to be somewhat difficult to transplant and needs supplemental watering the first few summers until it is reestablished. But once established it is quite drought tolerant.

RECOMMENDATIONS FOR RESEARCH

As far as I could determine, there are no current research or improvement programs involving *Corylus colurna*, and I could not find any indication that any research was done on it in the past. But Turkish hazel has been grown as a street tree in this country and in Europe. These plantings should be evaluated for survival, growth rate, maintenance requirements, and pest problems.

In addition, METRIA should encourage and coordinate the planting of more Turkish hazels as street trees. The survival and growth of these trees could then be closely monitored.

Finally, an attempt should be made to determine how much variation in form, growth rate, and foliage characteristics exists within the species. Decisions could then be made on whether or not any types should be asexually propagated.

COMMENTS BY THE AUDIENCE

Bill Wandell, Bill Flemer, and Peter van der Born reported that *Corylus colurna* was easily propagated by seed. They also said that if the roots are pruned by transplanting the tree several times during production, there should be no leaf scorching problem during establishment at its final

planting site. The fibrous root system developed in response to the root pruning will meet all of the needs of the tree.

George Ware was unable to root cuttings of *Corylus colurna*, but Peter van der Born has asexually propagated it by layering branches.

Ron Walkowiak reported that large trees at Schichtel's Nursery in Orchard Park, New York have set heavy crops of nuts. This is bad news since the nuts could present a major problem on city streets.

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