The Perils and Prospects of Hazelnut Growing in Zone 4, Eastern North America

My initial experience in growing hazelnuts in zone 4 was to plant 200 trees in the springs of 1995, 96, and 97. One hundred trees were grafted cultivars and the other 100 were seedlings.

All trees were described in U.S. catalogues or other print sources as "cold hardy" or "super hardy" and "resistant" to eastern filbert blight. Most sources of seedlings indicated that some variability among the offspring was to be expected, although some did not mention the substantial variability seen in the progeny of even carefully controlled cross -fertilizations.

The results of this initial attempt have been discouraging to say the least. Only fifteen trees remain of this original planting and seven of these are currently infected with eastern filbert blight. Only one healthy grafted tree remains from the original planting and it is a cultivar (Lisa) known to be susceptible to eastern filbert blight. The other 99 grafted trees succumbed to cold injuries (four cultivars were included in this group).

Six of the seven remaining healthy seedlings are from cultivars selected by Fred Ashworth in northern New York. These cultivars are a result of crosses of Skinner x (Graham + Winkler). The seedlings are very cold hardy and remarkably wind tolerant. However, only two of these Ashworth seedlings can be described as very productive. Unfortunately, the nut produced is small and of low quality.

The other healthy seedling is a "Finger Lakes Filbert" from Miller Brothers Nursery in Canandaigua, NY. This tree produces a small harvest of good quality nuts.

The nine other Finger Lakes Filberts, which were part of the initial planting, became infected with eastern filbert blight. Five of these are still living and producing some nuts.

One diseased tree has been very productive, with a good crop of nuts every year. This tree is a layered clone of "Graham Hybrid". Severe winters kill the catkins of this tree, but the flowers have survived and set nuts every year. I assume that the blight will drastically reduce future production by this tree.

Considering the expenditure of time and resources, this is not an experience that I would choose to repeat. However, there have been many new developments in hazelnut breeding that make the future hopeful for those easterners who crave tasty hazelnuts.

Currently our efforts focus on planting seedlings from controlled crosses and exposing them to eastern filbert blight when they are very young so that sensitive trees can be rapidly removed and replaced. We tie blighted branches above seedlings early in the second year of growth. Spores from these blighted branches are released by spring rains and infect the new growth on susceptible seedlings. A sensitive tree will usually show a blight lesion in 1-3 years.

We maintain blighted trees on the premises to use as a source of blighted branches and to release spores over adjacent trees.

We are currently crossing our most resistant and productive cultivars in controlled crosses and planting out the resultant seedlings. These are then exposed to lots of blight and zone 4 cold. If we're lucky, we'll find a cold hardy,

blight resistant, productive tree that will produce tasty nuts.

We are also in the process of obtaining blight resistant selections from the National Clonal Germplasm Repository in Corvallis, Oregon. These will be grafted on to hardy local seedlings to see which cultivars can survive and prosper in our zone 4 conditions. These will then be used in future controlled crosses to produce blight resistant progeny (we hope).

While we have not succeeded in any commercial sense, nevertheless there is much hope for the future of hazelnuts in Northeastern North America due to the outstanding work in hazelnut breeding, molecular genetics, and eastern filbert blight resistance at Oregon State University by Shawn Mehlenbacher and colleagues. They have recently released a new cultivar (Santiam), which they claim is "immune" to eastern filbert blight. We hope to test this cultivar as well as some others from Oregon under our conditions. Probably zone 4 will be too cold for most of these cultivars, but we need to find out the limits of these selections. Hopefully, other New York Nut growers in warmer zones will also grow some of these cultivars.

Tom Molnar at Rutgers University has also been hard at work collecting samples of filbert blight from all over North America and testing various cultivars and seedlings for blight resistance. He has released a list of cultivars that he has shown to be very resistant to the blight and should serve as parents for a new generation of blight resistant cultivars (see the NNGA newsletter "The Nutshell", Sept. 2006,vol.60, no.3, for Tom Molnar and Sara Baxer's article on how to make controlled crosses of hazelnuts and for his list of blight resistant cultivars).

What is needed now is a large planting of seedlings from cold hardy, disease resistant, productive parents. This would allow the selection of superior cultivars with many of the desired traits that we need. I plan to help in this effort and hope to plant out 1,000 seedlings over the next five years. This is only a fraction of what is needed if we hope to find truly outstanding cultivars.

If I can help you get started or discuss any problems related to hazelnuts in zone 4, please give me a call at 585-268-5588.

By Tom Potts