

# Managing Ornamental Pear Cultivars

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Ornamental pears are exotics widely used in the warmer parts of the nation (hardiness zones 6-8) for street, park, screen and accent plantings. The compact shape, heavy foliage, fall color and stark white Spring blooms have endeared ornamental pears to landscape managers and homeowners. Most of the cultivars available and widely used are derived from the Callery pear (*Pyrus calleryana*), with cross-species hybrids and closely associated species also used. The genus for these pears is *Pyrus*, from the Latin "pirus" for pear. There are approximately 22 species of pear around the world.

**NAMES:** The other common names for the Callery pear are pea pear, Chinese pea pear, ornamental pear, or known generically by its most common cultivar, Bradford pear. Callery pear is named after a French missionary to China in the mid-1800's named Joseph M. M. Callery. The tree is found as a native in China, Vietnam, Japan, and Korea. It is becoming naturalized in isolated areas through the seventh hardiness zone of the United States, primarily in the mid-Atlantic and Southeast.

The Callery pear was introduced into the United States in 1908 from China in an attempt to use it for breeding and root stock material to combat fire blight in fruiting pears. The breeding work was unsuccessful, but the tree gained acceptance among those seeking smaller, well managed landscape trees. Depending upon individual tree and soil health, these ornamental pears can tolerate moderate deicing salts, moderate drought once established, and various types of pollution (atmospheric and soil water borne).

**PLANTING:** Planting range should be selected in the hardiness zones 6-8. Micro-sites which concentrate cold air, have radiative frosts, and commonly have high humidity (fogs, mists, extended periods of high relative humidity) should be avoided even if within the hardiness zone range. Planting sites should be selected for good drainage but plenty of moisture. Heavy clay is acceptable if good drainage can be provided. Soils which are saturated during the Spring and Fall, or are poorly drained, should be avoided for best success. High pH soils (alkaline) should be avoided.

Spring planting will maximize success (Fall planting is not recommended). The planting site should be in 80% to 100% full sun. The tree should be planting slightly high (minimum two inches) in the landscape (i.e. root crown placed above grade). The trees are self sterile and should be planted with 50 feet of each other for viable seeds.

**MANAGEMENT:** Care must be exercised with nitrogen fertilization. Nitrogen fertilization accentuates fire blight and other bacteria diseases, as well as aphids (along with sooty mold) and scale insects. When pruning for structure and aesthetics, cold season pruning is best to minimize pest problems. Sanitation of tree tissues and tool surfaces are important even in the dormant season.

**CHARACTERS:** Callery pears are known for their interesting foliage which flutters in the wind due to long leaf petioles, which can be thick and leathery dark green, and which tends to remain on the tree for an extended period. Fall coloration of the leaves begins with maintenance of dark green color late into the growing season shifting (in full sun) to purples in early fall, ending with the deep reds of late fall. There are timing variations, and Summer and Fall color differences among the various cultivars. The brilliant white flowers precede the foliage for most cultivars, adding to flower impact.

**STRUCTURE:** A number of cultivars were selected for foliage and flowering traits, sometimes concentrating pest problems and structural faults. A number of cultivars are notorious for poor branch attachment due to narrow crotch angles, poor collar development (codominance) and included bark. Branch connection



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problems coupled with poor training programs, present trees which lose entire quadrants of crowns, crown tops, and large branches under wind, ice, and precipitation loading.

**TRAINING:** The heavy density of branching, and nursery management applications to quickly develop a compact and characteristic form, can lead to many training problems which, if not corrected, will lead to both value and whole tree losses. The characteristic shape of many cultivars can be positively modified by crown reduction and subordination, or by branch training for structural sustainability, rather than allowing traditional presentation scaffolding for foliage and blooms.

**PESTS:** Ornamental pears have a number of pest problems. Foremost among all problems is fire blight, which is discussed below in more detail. In addition, depending upon management and site inputs, Callery pears are susceptible to a number of aphids with the accompanying honey dew precipitation and the formation of sooty mold on foliage and surfaces below. Scale insects of various types are occasionally found on Callery pears, especially under heavy nitrogen fertilizer regimes. A rust disease can cause twig disruption and defoliation of trees in Summer.

Fire blight is a bacterial disease attacking ornamental pears. Fire blight is most prevalent where Spring and Summer nights are humid and warm. Because its causal agent is bacterial and easily spread, infected twig tips should be pruned away, bagged, and discarded. Sanitation is a priority with fire blight. Any pruning tools coming in contact with infected areas or bark areas below an infected area should be disinfected after each cut.

Fire blight generates damage to the twig and branch tips which appear as if they were burned with a flame. Usually the outward most twig tissue is damaged back 12 to 30 inches along the twig. Sanitation pruning cuts should be made at the nearest healthy, non-infected node found below along the twig or stem, 12 inches or more from the infected area. The non-infected bark below an infected area will have the fire blight bacteria on its surface. Under intensive management systems, an anti-biological agent and aggressive sanitation pruning will be required at weekly intervals.

**SPECIES ASSORTMENT:** Although most people use the name Callery pear to represent a number of ornamental pear cultivars, some cultivars are not *Pyrus calleryana*, but a hybrid or a closely related species. To assist managers in sorting out the taxonomy of what the market place generically call ornamental Callery pears, the following table was prepared:

Differentiating Ornamental Pear Species				
scientific name	original source	& US introduction year	common name	height in feet
<i>Pyrus betulaefolia</i>	N. China,	1865	birch-leaved pear	30'
<i>Pyrus calleryana</i>	China,	1908	Chinese pea pear	35'
<i>Pyrus calleryana graciliflora</i>				
<i>Pyrus calleryana tomentella</i>				
<i>Pyrus calleryana dimorphophylla</i>	Japan,	1918	Japanese pea pear	16'
<i>Pyrus dimorphophylla</i>				
<i>Pyrus calleryana fauriei</i>	Korea,	1918	Korean pea pear	10'
<i>Pyrus fauriei</i>				
<i>Pyrus kawakamii</i>	S. China		Chinese evergreen pear	25'

Callery pears and closely associated ornamental pears have a place in our community forests if planted in moderation, managed in a tree-literate way, and selected to maximize cultivar success.