

Bedford County Conservation District 2012 Tree and Shrub Seedlings Sale

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Information presented in these pages was compiled from several sources including:

Rhoads, A.F. and Block, T.A. 2000. The Plants of Pennsylvania: An Illustrated Manual, University of Pennsylvania Press, Philadelphia.

Brand, M.H. 2001. The University of Connecticut Plant database website,
<http://www.hort.uconn.edu/plants/about.html>

Yiesla, S. 2012. Selecting Shrubs for Your home, University of Illinois Extension website,
<http://urbanext.illinois.edu/ShrubSelector/credits.cfm>

Arbor Day Foundation website, <http://www.arborday.org/trees/treeguide/>

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Eastern White Pine	Will Cook, 2008, Duke University website, http://www.duke.edu/~cwcook/trees/pist.html
Red Osier Dogwood	John M. Hagstrom, Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/
Red Chokeberry	Gary J. Kling, University of Illinois website http://woodyplants.nres.uiuc.edu/plant/aroarbr The University of Connecticut Plant database website, http://www.hort.uconn.edu/plants/about.html
Black Chokeberry	The University of Connecticut Plant database website, http://www.hort.uconn.edu/plants/about.html
Buttonbush	Kemper Center for Home Gardening at http://www.fcps.edu/islandcreekes/ecology/buttonbush.htm
American Hazelnut	Tony Fath, Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/ US Fish and Wildlife Service, public domain
Spicebush	Cody Hough, Common Spicebush (<i>Lindera benzoin</i>) on the Al Sabo Preserve in Texas Township, Michigan. From Wikipedia website Maine.gov, Department of Conservation
Northern Bayberry	The University of Connecticut Plant database website, http://www.hort.uconn.edu/plants/about.html
American Elderberry	Jonathunder at Wikipedia website The University of Connecticut Plant database website, http://www.hort.uconn.edu/plants/about.html

Arrowwood Viburnum	John M. Hagstrom, Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/
Blackhaw Viburnum	Jeff B. Franklin, Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/ John M. Hagstrom, Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/
Shadblow Serviceberry	The University of Connecticut Plant database website, http://www.hort.uconn.edu/plants/about.html
River Birch	Tommy Williams, Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/
Eastern Redbud	Kerry Wilken, Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/ The University of Connecticut Plant database website, http://www.hort.uconn.edu/plants/about.html
Pin Oak	The University of Connecticut Plant database website, http://www.hort.uconn.edu/plants/about.html Karina Helm, Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/
Tuliptree	Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/ Christian Feuillet, Arbor Day Foundation website, http://www.arborday.org/trees/treeguide/ The University of Connecticut Plant database website, http://www.hort.uconn.edu/plants/about.html

2012 Tree and Shrub Seedlings

Eastern White Pine (*Pinus strobus*)

Eastern white pine is an evergreen conifer that grows rapidly and can reach over 80 feet tall by 40 feet wide or larger under optimal conditions. The very straight trunk produces a whorl of lateral branches every one to two feet. White pine is harvested for lumber, for pulp, and to produce creosote-soaked utility poles. During colonial times, white pine was used for the masts of sailing ships, with agents of the royal government marking trees throughout the colonies as crown property to be shipped to England for ship construction.

Eastern white pine needles are long (4" long), soft and flexible, in groups of 5 per fascicle, light green with a bluish cast. The cones are light brown, 6" – 8" long, curved, pointed, and usually clustered in the upper part of the tree. They take 2 years to mature.



Planting requirements:

White pine grows best in moist, rich, well-drained acidic soils in full sun. Soils that are alkaline and poorly drained (heavy clay soils) can limit growth and cause yellowing of needles.



Potential Problems:

In urban settings, white pine is very susceptible to chlorosis (yellowing) caused by alkaline soils, winter salt spray, compacted clay soils, and poor drainage.

Young transplants and saplings can be affected by deer and rabbit browsing. White pine blister rust is a fungus that attacks the inner bark but can be controlled by removing gooseberry and alpine currant shrubs, the intermediate hosts of the fungus, from within a ¼ mile radius around the tree. White pine is also attacked by the white pine weevil, which may severely impact mass plantings in pure forest

stands, nursery plantations, and Christmas tree farms. The white pine weevil bores into terminal shoots, distorting the growth of the upper canopy.

Red Osier Dogwood (*Cornus sericea*)

This native dogwood is an open, spreading, multi-stemmed, medium to large shrub with horizontal branches (stolons) at the base that can root from the tip or at nodes to start another upright plant. Growing ten to fifteen feet tall with a crown spreading a similar distance, red osier dogwood has alternate leaves that are simple ovate to oblong lance shaped and 2" to 5" long. Flowers are creamy white in flat-topped clusters (cymes) developing into gray-white berries. The leaves turn to a red-purple in autumn and the dark, blood-red bark provides winter color.



Red osier dogwood is used for field and farmstead windbreaks, riparian plantings and highway beautification. In urban settings, it can be used for screenings, border plantings, bank cover, and specimen plantings. The berries are used by a variety of birds and the dense nature of established plantings provides cover for many types of wildlife.



Planting Requirements

Red osier dogwood is adaptable to a variety of soil types from pH 5.0 to 7.5, growing best in moist to somewhat wet loams in full sun to partial shade.

Potential Problems:

Twig blight (canker), caused by dogwood anthracnose, can be a problem. Dogwood anthracnose can be a severe problem for the flowering dogwood (*Cornus florida*) but less so for red osier dogwood. This fungal infection is more likely to affect drought-stressed plants and shade grown plants.

Red Chokeberry (*Aronia arbutifolia*)

This chokeberry is a small to medium, multi-stemmed size shrub growing to 15', but more commonly from 6' to 10', with an upright oval shape. Red chokeberry has alternate leaves from 1.5" to 3.5" long, obovate in shape, with fine serrations long the edges. The upper surface is medium to dark shiny green with an underside of gray-green with fine hairs. Flowers are white, in clusters, and develop into shiny, bright red fruits (pomes) about 1/4" in diameter. The fruits are very stringent and are unlikely to be eaten by birds until more palatable fruits have been exploited, usually later into winter.



Red chokeberry, with four-season appeal and excellent fall effect, is often used for mass plantings, borders and bank stabilizations. It is useful in naturalizing waste areas and, spreading by suckers, is a useful colonizing plant. Dense mass plantings provide wildlife cover.

Planting Requirements:

Red chokeberry can tolerate a range of soil types and can adapt to both wet and dry sites, but has a preference for somewhat acidic soils. This species can tolerate partial shade but for strong flowering and fruit production, and for the most intense autumn color, planting sites with full sun are best. This is an easy plant to establish and tolerates transplanting.



Potential Problems:

Red chokeberry has no serious problems though is potentially subject to any of the problems common to members of the Rosaceae family (plums, cherries, roses, hawthorns, crabapples, serviceberry). Like all chokeberries, it can spread by underground suckering.

Black Chokeberry (*Aronia melanocarpa*)

This adaptable chokeberry is smaller than the red chokeberry reaching typical heights of 3' – 6' tall, with 8' in height and width as a maximum. Its ability to self-sow and suckering habit allows for formation of colonies within a few years, making this a useful shrub for naturalizing waste areas and stabilizing soils on banks. The leaves are similar to red chokeberry, but smaller, and flowers are also much like the red chokeberry. Fruits are deep purple to blue-black, astringent, and loaded with anti-oxidants. Commercially grown, especially where imported to Europe, the juice is used for its color in a variety of food products and increasingly to supplement juice drinks for the anti-oxidant health benefits.



A useful plant for its excellent soil-gripping qualities and rapid establishment, black chokeberry also displays desirable foliage and flowers, rich autumn colors and winter fruit display.

Planting Requirements:

Black chokeberry prefers moist, well-drained, acidic soils but can thrive in a variety of soil types, including alkaline soils, sites that dry in summer, and rocky or sandy soils, and may form pure stands in wet sites with clay soil. Full sun maximizes flowering, fruit, and autumn foliage colors, but partial shade is well tolerated.

Potential Problems:



Black chokeberry has no pests or diseases of significance though potentially could suffer from the same problems noted for red chokeberry as a member of the rose family. Very rarely, wet spring seasons followed by a wet summer can lead to disease.

Buttonbush (*Cephalanthus occidentalis*)

Buttonbush is a medium sized shrub native to the Eastern US easily recognized in summer by its globular white flowers. The glossy foliage emerges later than many other woody plants (mid-spring) and is a secondary ornamental feature. Growing 6' – 12' tall, buttonbush is somewhat sprawling with widths up to 12' – 15'. The green globular fruits that follow the flowers turn brown in autumn and consist of a cluster of nutlets that are a minor food source for mammals and birds. The dense character of the plant provides cover for birds including ducks and other waterfowl. It is a useful plant for borders, stream and pond banks, and for naturalizing disturbed areas.



Planting Requirements:

Buttonbush prefers wet soils of variable pH but can tolerate moist, well-drained sites as well. Full sun is best for buttonbush, which in addition to tolerating alkaline soils, can adapt to heavy compacted soils and windy sites. It adopts a more compact habit when grown in moist clay or organic soils that become dry in summer.

Potential Problems:

Buttonbush is free of serious pest or disease problems unless grown in excessively dry sites.

American Hazelnut (*Corylus Americana*)

American hazelnut is a medium to large shrub typically 6' – 12' but occasionally growing to 20' under optimal conditions. Also known as American filbert, hybrids have been developed between this and the European filbert to take advantage of the superior nut quality of the European species and the cold hardiness and disease resistance of the American. Naturally found along hedgerows, roadsides, and forest edges and in fields, this multi-stemmed hazelnut often becomes arching and spread when mature,

with new vertical suckers keeping the interior dense. Under some conditions it can take the form of a small tree.



Hazelnuts are related to the alders, birches, hornbeams, hophornbeams, and other members of the Birch family. Our native hazelnut does not produce nuts as large as the European filbert or several hybrids but the nuts are deliciously edible and eagerly consumed by squirrels, deer, and turkeys. The male catkins are a favorite of ruffed grouse throughout the winter. The leaves are simple, alternately arranged, medium to dark green with fine hairs. The leaf base is somewhat heart-shaped and the margin is

serrated. Male and female flowers are separate but found on the same plant. Female flowers are found near the end of twigs with the red stigma almost completely enclosed by bracts; male flowers are hanging catkins. The nut develops inside a papery husk. Autumn leaves are yellow.

Planting Requirements:

Hazelnut prefers a moist, well-drained loamy soil of slightly acidic pH but adapts to alkaline soils and dry sites. The roots are relatively shallow and absorb water and nutrients from the top few inches of the soil. Full sun is best for flowering and nut production but sites with partial sun are OK. Hazelnut is easy to transplant even in larger sizes, can be pruned at any time, and can be propagated by cuttings.



Potential Problems:

American hazelnut has few diseases or pests, none serious.

Spicebush (*Lindera benzoin*)

Spicebush is typically found as an understory plant in moist to wet woodlands, often associated with yellow poplar (tuliptree), throughout its native range in the Eastern US. Growing to 12' tall, spicebush is named for the spicy fragrance of leaves and twigs when crushed. A member of the Laurel family, spicebush is related to sassafras, both of which are foods for the larvae (caterpillar) of the striking spicebush swallowtail butterfly. Spicebush blooms early, in late winter and early spring, with fragrant yellow-green



blossoms that are very visible among the leafless branches in its natural setting. Bright red fruits, a 1/2" long drupe, appear in late summer on the female plants and will persist into winter if not eaten by birds or wildlife. The leaves are deep green and glossy turning yellow in autumn.

Spicebush is useful in border plantings and in naturalizing disturbed areas, for plantings along streams or ponds, and in shade, native plant, or rain gardens.



Planting Requirements:

While preferring rich, moist to wet sites in shaded locations and slightly acidic pH, spicebush easily adapts to dry, average soil conditions in sunny sites. In sunnier sites, the growth will be more compact with denser branch development, and better flowering and fruiting.

Potential Problems:

No serious insect or disease problems.

Northern Bayberry (*Myrica pennsylvanica*)

Bayberry is a small to medium shrub, deciduous or semi-evergreen, typically reaching 5' to 6' but occasionally to 10' tall, with a rounded to sprawling form. The dark green, leathery foliage can persist well into winter where climate is mild but does not exhibit attractive fall foliage. The leaves are 1' –4' long, simple, obovate or oblong with shallow teeth at the apex. Male and female flowers are on separate plants; male flowers as catkins and the female flowers are single and inconspicuous.



Female flowers develop small gray-green, waxy berries that are used in candle making. Some birds, especially yellow-rumped warblers, also eat the berries. Bayberry is used for borders, foundation and mass plantings on landscapes and at difficult sites due to its adaptability. It copes well at windy locations and tolerates salt and so is common in seashore landscapes. Root nodules contain nitrogen-fixing bacteria allowing the plant to grow in poor soils.

Planting Requirements:

Bayberry is very adaptable, tolerating sites from wet to dry but prefers moist, peaty or sandy, acidic soils and tolerates drought well. Groupings of plants are needed to ensure that each sex is available for flowering and seed production.

Potential Problems:

No serious insect or disease problems. Chlorosis (yellowing) can occur on alkaline soil sites. Suckering and colony development



may be a liability requiring control in some landscapes.

American Elderberry (*Sambucus Canadensis*)

A medium size, deciduous multi-stemmed shrub native to the Eastern US, elderberry is fast-growing to 12' tall in an arching to rounded, upright habit. The dark green leaves are odd-pinnately, compound with 5 to 11 (usually 7) leaflets, sharply serrated 2" to 6" long. Large flattened clusters of fragrant, tiny, cream-colored flowers in summer developing into clusters of purple-black berries (drupes) in late summer. Autumn foliage is yellow-green and not ornamentally important. Elderberry is planted for fruit production, for naturalizing disturbed areas and as a specimen planting. Many types of birds eagerly consume the fruit. The flowers attract butterflies.



Planting Requirements:

Elderberry prefers moist, well-drained soil, but can tolerate dry or wet sites and alkaline soil, in full sun or partial shade. This plant can be easily transplanted and is propagated by seed, division, and hardwood cuttings.

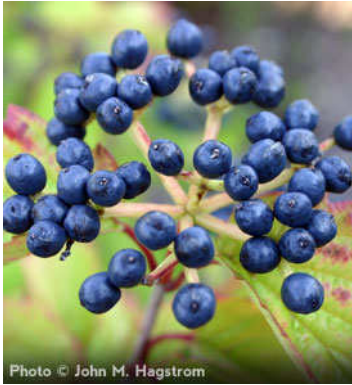
Potential Problems:

Elderberry is subject to powdery mildew and leaf spot.

Arrowwood Viburnum (*Viburnum dentatum*)

Arrowwood viburnum is a small to medium size multi-stemmed shrub native to the entire eastern half of the US and southern Canada. The common name refers to the "straight as an arrow" basal stems that reportedly were used as shafts by Native Americans. Typically growing from 6' – 10' tall, Arrowwood has a rounded but upright habit. The dark green leaves are simple, oppositely arranged, coarsely serrated and 2" to 4" long. Creamy white flowers in showy flat clusters (cymes) 3" across appear in late spring, usually with numerous blooms. The fruit (1/4" blue-black berries) appear in late summer and are enjoyed by birds. Autumn foliage is of varying color and intensity and may be yellow, orange, red, or purple. Having ornamental value throughout the year, arrowwood viburnum is planted as a hedge or border, in mass and specimen plantings, and in naturalizing disturbed areas and riparian zones. Members of the Honeysuckle family, viburnums are related to elderberries.





Planting Requirements:

Arrowwood viburnum is easy to grow, transplants well, and prefers moist, well-drained soils of slightly acidic pH in full sun or partial shade. While this viburnum adapts well to dry and wet sites, soils with higher pH may cause chlorosis. Arrowwood viburnum may need occasional rejuvenation pruning.

Potential Problems:

Useful for its extreme durability, arrowwood viburnum is free from serious problems.



Blackhaw Viburnum (*Viburnum prunifolium*)



Common in successional woodlands, thickets, old fields and roadsides, blackhaw viburnum commonly grows as a medium to large, rounded to oval shaped shrub up to 15' with a spread of 10', but can be trained as a small tree and occasionally reach 25'. Plump floral buds on arching branches in winter, white flowers in spring, glossy summer foliage, and colorful fruits and leaves in autumn mean blackhaw has four-season appeal as an ornamental. The leaves are simple, dark green oppositely arranged, 1.5" to 3.5" long with fine serrations on the margin. Showy flowers in late spring develop into fruits that change from yellow-green to pink to red-purple and to blue-black in

winter. Autumn foliage colors are red to purple.

With uses similar to arrowwood viburnum, blackhaw is less suited to wet sites and more adaptable to drier alkaline soils.

Planting Requirements:

Blackhaw viburnum is easy to grow, transplants well, and adapts to a range of soil types. Full sun to partial shade is best and propagation is by seed.

Potential Problems:



Adaptable and durable, blackhaw viburnum is free from serious problems.

Shadblow Serviceberry (*Amelanchier canadensis*)



Also known as Juneberry and shadbush, shadblow serviceberry is a large shrub to small tree, 10' to 20', found naturally in moist woods, bogs and swamp, though less common than related and similarly named, serviceberries (*A. arborea*, et al) that are found in upland woods, edges and roadsides. This species has dark green leaves, alternately arranged, oblong with a rounded base and serrulate margins, and 1.5" to 2.5" long. The white blooms appear in early spring before leaves emerge and are held in erect racemes. The fruit appear early summer, red changing to black, and are juicy, sweet, and edible. Autumn colors are golden yellow but these drop rather quickly. The silver-gray, striped bark is of ornamental interest.

This serviceberry is multi-stemmed, spreading by suckering, but can be trained as a small tree, emphasizing the beauty of the striking bark in all seasons. Planted in a riparian area, or as specimen or in small groups, or for naturalizing disturbed areas, this serviceberry adds beauty as well as wildlife food to suitable landscapes.

Planting Requirements:

Preferring moist to wet sites, slightly acidic soils, and full sun to shade; this serviceberry can tolerate somewhat alkaline soils, salt, and wind. Easily transplanted, it is usually pruned to a small tree. Propagation is by seed.

Potential Problems:

This serviceberry is susceptible to rust, scale, aphids, and mildews.



River Birch (*Betula nigra*)



Also known as red birch, river birch is a medium size tree, the most southern of the native birches, that is naturally found on floodplains, riverbanks, in wet woods and in swamps. Fast-growing, river birch can reach heights of 80' or more. The tan to reddish brown bark exfoliates in irregular papery layers revealing tan, orange, and pinkish under layers; significant for ornamental interest. The leaves are a shiny medium to dark green, simple and alternately arranged, with a wedge shape and double serrate margin. Flowers are separate male and female catkins and the fruits are samaras, with lateral wings, contained in a cone. Autumn color is yellow but the leaves drop quickly; not the

best birch for autumn color but the bark is attractive.

Frequently multitrunked, river birch is useful in riparian plantings, as a specimen planting, lawn or shade tree (shade is light so turf grass can grow), and is popular on golf courses, public grounds and parks. Birch seeds are eaten by a number of birds including chickadees and wild turkeys.

Planting Requirements:

River birch is best suited for moist bottom soils but does well on drier sites. Preferring full sun, this birch can develop chlorosis in soil above pH 6.5. It is better adapted to heat than most birches and is easily transplanted and established from B & B or container. Propagation is by seed or softwood cuttings.



Potential Problems:

River birch is resistant to the bronze birch borer, that affects the more northern birch varieties when planted in warmer climates, and is relatively trouble free. Wet years can cause some leaf spot. Drought can cause leaf drop from the interior of the canopy.

Eastern Redbud (*Cercis Canadensis*)

American or eastern redbud is a small tree native to the Eastern US south of New England. It is a fast-growing species, reaching 20' – 30' and up to 25' wide, usually multitrunked in the wild with a vase shape. Often found at the edge of woodlands where it commonly has a leaning habit as it grows toward sunlight, redbud is valued for the striking beauty of its showy, lavender-pink blooms that appear before leaf-out.

Redbud is a member of the Legume, Bean, or Pea Family and is related to honeylocust, black locust, and wisteria. It has simple, alternately arranged, heart-shaped leaves that emerge as pale green tinged with red but mature to a dark green. The winter buds are a dark red to chestnut brown and the blooms, appearing in May in PA, have a deep red calyx and pink to rose to lavender corolla. The blooms appear on old branches and the trunk as well as on new stems. The fruits are flattened bean-like seeds in legume



Photo © Kerry Wilken

Pods 2" – 3" long, green changing to brown in October. Native Americans consumed redbud flowers raw or boiled, and ate roasted seeds.



Redbud is planted as a lawn tree or specimen planting and is useful in smaller yards, in naturalized or woodland plantings and as a patio tree.

Planting Requirements:

Redbud prefers deep, moist, well-drained, organic soils but adapts to many soil types, acidic or alkaline so long as the site is not too wet. Growing in full sun to light shade, redbud will grow rapidly and flower profusely with adequate summer moisture. Wet, heavy clay soils will limit lifespan and vigor.

Potential Problems:

Trunk canker is a serious disease of redbud as are verticillium wilt and root rot, two diseases that affect roots due to wet soils. Scales can also be a pest, but are minor compared to the diseases.



Pin Oak (*Quercus palustris*)



Pin oak, also known as swamp oak or swamp Spanish oak, is a large deciduous tree native to the Eastern US. Its growth habit is distinctive with lower branches downswept, horizontal middle branches and ascending upper branches; pyramidal shape when younger becoming oval or 'gumdrop' in maturity. Often found in the wild in wet areas, pin oak can form almost pure stands on floodplains and wetlands, doing well on lands that are intermittently flooded during the dormant season, and less tolerant of flooding during the growing season. Pin oak was used to make "pins" for timber frame construction of barns, hence the name. It is a medium to rapidly growing tree used as a shade or lawn tree; often seen in campus and park plantings and very popular as an ornamental. Growing to 75' tall with a width of about 40', pin oak is a member of the red oak subgenus (*Lobatae*) with leaves having pointed lobes. The leaves are 3" to 6" long, alternately arranged, dark shiny green, with 5 or 7 lobes, the sinuses deeply cut and u-shaped. The flowers appear at about the same time as leafing begins. The acorns are small, about $\frac{3}{4}$ " in diameter, with a thin, shallow cap. Autumn color is variable; some trees with excellent red

and russet leaf color; others are less impressive with tan or brown leaves. Young trees commonly retain dead leaves into winter.

Planting Requirements:

Pin oak prefers moist, fertile, well-drained acidic soils and full sun. In alkaline soils, chlorosis may develop. Fast-growing for an oak, and easily transplanted, pin oak requires adequate room to develop, a potential problem for smaller yards.

Potential Problems:

As mentioned above, neutral or alkaline soils can result in chlorosis due to the inability of the roots to transport iron causing poor nitrogen utilization, inhibited photosynthesis, and loss of vigor. Pin oak may exhibit galls due to insect feeding and may suffer from the typical pests and pathogens of all oaks.



Tuliptree/Yellow Poplar (*Liriodendron tulipifera*)



Also known as tulip poplar, tulip magnolia, and whitewood, this tree is related to neither tulips nor poplars but is a member of the Magnolia family. It is a large tree, tallest tree of eastern forests, easily reaching 70' to 90' tall and commonly exceeding 150' with a massive trunk 4' in diameter. The showy flowers and leaf silhouette are reason for the reference to tulips and the fluttering of the leaves, as well as the golden yellow autumn color, account for the poplar reference. The habit is oval to pyramidal for younger trees, somewhat irregular with mature specimens, and the trunk is generally limbless for a considerable distance above ground.

The alternately arranged leaves are bright green, 5" to 8" long and wide, with a 'tulip' shape. The tulip-like flowers are borne singly on the end of branches, 2" – 3" long, with green sepals, light yellow-green petals marked with bright orange inside at the base, and with a cucumber-like aroma.

The fruit is a cone-shaped aggregate, green turning to brown, and persisting into winter.

Tuliptree is a popular shade and lawn tree, fast-growing yet long-lived. The wood is fine-grained and stable, easily worked and, so, often used as secondary wood and veneer base in furniture and cabinetmaking. Bees make honey from the flowers and the fruit is eaten by wildlife.

Planting Requirements:

Tuliptrees prefer deep, rich, moist, well-drained slightly acidic soils but adapts to drier, average soils of neutral to slightly alkaline sites. Sites with full sun are best but very dry, hot sites should be avoided. As with



all members of Magnolia family, the roots are fleshy with few root hairs and favors being transplanted in spring rather than fall.



Potential Problems:

Aphids can be pests of tuliptrees, chewing on new growth and secreting 'honeydew' on the leaves that can serve as food for sooty mold that blackens leaves but causes no significant harm. Diseases that affect tuliptrees include verticillium wilt, root rot, and trunk canker. Like the birches, tuliptrees will drop interior leaves in drought conditions.