Table of Contents - 2020 Edition

Sponsor Listings
Thank You to All Our Sponsors ........................................ 65
Listing by Company Name ........................................... 66
Listing by Product / Service ......................................... 69

Cornell Cooperative Extension
& Other Helpful Contacts
Cornell Cooperative Extension Contact Information .......... 5-6
Pesticide Emergency Numbers ........................................ 7
NYS DEC Contact Information ....................................... 126
Extension Educators Listing ........................................... 129-130
Professional Horticulture Associations/Programs .............. 131-134
Gardens and Arboretums .............................................. 135-136
NYS & County Contact Information .................................. 137-139

Laws & Regulations Affecting the Horticulture Industry
NYS Laws ................................................................. 106-109
County Laws .............................................................. 110-111

Pesticide Applicator Information
Calibration Formulas .................................................... 102
Growing Degree Days for Insect & Pest Management .......... 121
Personal Protective Equipment - Gloves ............................. 123-124
Requirements for Service Containers ................................. 125
NYS DEC Pesticide Reporting, Applicator, & Product Info. . 126-128

Transplanting & Plant Health Care Information
Tips for Balled & Burlapped, Bare-root, & Containerized Plants 8-9
Tree Support Systems .................................................... 10
Selecting Quality Plant Material ....................................... 11-12
Planting Hedges .......................................................... 12
ANLA Standards .......................................................... 13-14
Pruning Times and Techniques ......................................... 15-25
Cold Hardiness & Heat Zones .......................................... 17
Assuring Holly Berries ................................................... 36

Lime and Adjusting pH ................................................... 98-101
Mulch & Sod Coverage Charts ........................................ 101
Amount of Growing Media for Containers ......................... 102
Irrigation Abbreviations and Conversion Factors ................ 103-105
Fertilizer Calculations ................................................... 111
Essential Plant Nutrients ................................................. 112-116
Conversion Factors ...................................................... 117-120
Meteorological Extremes ................................................ 122

Plant Lists
Plant Award Winners ..................................................... 26-28

Cross Reference for Common Names:
  Herbaceous & Woody Ornamentals ................................. 29-35
  Dioecious Plants ........................................................ 36
  Invasive Plants & Alternatives to Invasive Ornamentals .... 37-52
  Suffolk County Do Not Sell List & Watch List ................. 39-42
  NYS Prohibited & Regulated Invasive Spp. lists ............... 49
  Exempt cultivars ....................................................... 52
  Plants that Attract Birds and Butterflies ......................... 53-54
  Plants that Support Native Bees .................................... 54
  Plants that are Deer Tolerant/Resistant ......................... 55-56
  Plants Suitable for a Dry Location ................................. 56-57
  Plants Suitable for a Coastal Location ......................... 59-60
  Plants Suitable for a Shaded Location ......................... 61-62
  Recommended Street Trees for Long Island ...................... 63-64
  Trees to be Cautious of for Fall Transplanting .............. 78
  Plants Suitable for a Wet Location ................................. 78-79
  Long Island Native Plants .......................................... 81-84
  Perennials for Cut Flowers .......................................... 85
  Grey-leafed Perennials ............................................... 85
  Long-blooming Perennials ............................................ 86
  Perennials - Flowering Month by Month ......................... 87-91
  Plants that are Rabbit Resistant ................................... 91
  Perennials that are Known For Fragrance ....................... 92
  Plants for Ground Covers ........................................... 92
  Summer Flowering Woody Plants ................................... 93
  pH Requirements for Common Ornamental Plants ............... 94-97
Cornell Cooperative Extension
Building Strong and Vibrant New York Communities

The Cornell University Cooperative Extension educational system enables people to improve their lives and communities through partnerships that put experience and research knowledge to work.

Cornell Cooperative Extension...
• builds partnerships and coalitions with individuals, communities, organizations, government agencies, and businesses around issues of mutual concern;
• develops local leaders who use CCE knowledge to inform decisions;
• promotes youth development through 4-H clubs and other experiences;
• strives to help participants make informed choices using the best knowledge available;
• connects learners with educational resources found in locations throughout the world;
• consults with individuals and groups on multiple topics;
• provides numerous types of resources.

Cornell Cooperative Extension is a partnership involving...
• 56 Extension Associations throughout New York State;
• Faculty and staff in Cornell’s New York State Colleges of Agriculture and Life Sciences, Human Ecology, and Veterinary Medicine;
• 50,000 volunteers participating in both program and organizational leadership;
• 111 land-grant institutions across the United States and territories;
• statewide and community agencies, organizations, and businesses;
• New York State’s people.

Who To Contact for Questions and Diagnoses*
In Suffolk County - www.ccesuffolk.org
Extension Specialists for Nursery and Landscape
Deborah Aller, Soil Scientist / Agricultural Stewardship Specialist
da352@cornell.edu • 631-727-7850 x206
Nora Catlin, Agriculture Program Director / Floriculture Specialist
njc23@cornell.edu • 631-727-7850 x214
Margery Daughtrey, Ornamental Pathology
mld9@cornell.edu • 631-727-3595
Dan Gilrein, Assoc. Ag Program Director / Ornamental Entomology
dog1@cornell.edu • 631-727-3595
Andy Senesac, Weed Science
afs2@cornell.edu • 631-727-3595
Mina Vescera, Nursery / Landscape Specialist
mv365@cornell.edu
office: 631-727-7850 x213 • cell: 631-603-9613
Tamson Yeh, Turf/Land Manager Specialist
tsy3@cornell.edu • 631-727-7850 x240

*A complete directory of Suffolk County Agriculture Staff starts on page 129.

In Nassau County - www.ccenassau.org
Cornell Cooperative Extension of Nassau County Horticulture Center
Vincent Drzewucki, Resource Educator
vad37@cornell.edu • 516-565-5265 x10
Demonstration & Community Gardens at East Meadow Farm
832 Merrick Avenue, East Meadow, NY 11554
Garden Helpline: 516-565-5265 x7

Cover photo: Long Island native annual, partridge pea (Chamaecrista fasciculata), blooming in August.

Suffolk County CCE Nursery and Landscape Program Website
Useful information for nursery growers and landscape professionals is available on the CCE Website at <www.ccesuffolk.org/agriculture>. You’ll learn about the latest hort news, upcoming conferences, and current projects.
Plant problems and disease diagnoses
Insect identification
Tick identification
Soil pH testing

Horticulture Consulting and Recommendations

Horticulture Diagnostic Lab

Pesticide Emergency Numbers

Pesticide Spills and Accidents:
CHEMTREC, 800-424-9300

Pesticide & Information Emergencies
National Pesticide Information Center, 800-858-7378
Hours for the Information Center, M-F, 11 AM - 3 PM
http://npic.orst.edu
npic@ace.orst.edu

Report Oil & Hazardous Material Spills
NYS-DEC, 800-457-7362 (in NYS)
518-457-7362 (outside NYS)

Information on Symptoms & Treatment:
Long Island Regional Poison & Drug Info Center
Winthrop University Hospital
259 1st St.
Mineola, NY 11501

Emergency - 800-222-1222
Information - 516-663-2650

Agricultural Nurse Program
New York Center for Agricultural Medicine & Health
800-343-7527

For instructions, including costs for submitting samples to the diagnostic labs, visit our website at www.ccesuffolk.org

IBG
“BIG on Plant Health”

Exclusive Distributor of Nat Bio Nutritional and North Country Organics.
- Soil Amendments • Microbials • Plant Stimulants • Plant Nutrients
- Fertilizers • Compost • Organic/Inorganic • Custom Blending Available

Delivering natural, agronomic solutions direct

1448-1 Riverhead-Speonk Road, Speonk, NY
info@islandbiogreens.com
Ken Kraus 516-658-8318

www.islandbiogreens.com
Like us on Facebook
Planting Tips

Balled & Burlapped Plants
Excavate soil on top of the root ball to expose trunk flare. Then dig the planting hole only deep enough so the trunk flare will be at ground level. It is better to plant shallower then deeper as long as the top of the ball and roots are protected with a mulch.

Dig the planting hole 2 – 3 times as wide as the ball.

Do not disturb the bottom of the hole. The plant should be placed on a solid base so it won’t settle from its own weight resulting in deep planting. Digging deeper will not improve drainage.

Untie the rope from around the trunk and remove.

Remove the burlap especially if it is plastic or treated to delay rotting. Untreated degradable burlap could be left on but it is better to remove partially or completely to expose the trunk flare and correct any girdling root issues before planting. If left on, be sure to loosen the top and fold over or cut off so it will not be exposed to the air.

Wire baskets should be removed when possible. At a minimum, the top of the basket should be bent back away from the trunk or cut away with bolt cutters.

Fill the hole halfway with soil and water thoroughly to settle the soil around the roots. After the water drains, completely fill in with soil and water again. Modifying the backfill with amendments is not recommended as establishment problems can occur if the soil textural differences are great. If the soil is poor, modify a larger planting area rather than just the planting hole.

Mulch the top of the planting hole with 2-3 inches of material. Do not mulch too thickly and pull the mulch away from the base of the plant.

Containerized Plants
Remove the plant from the container.

Do not plant root bound plants.

Don’t plant too deeply! The root flare should be at ground level.

Slice the sides of the root mass in several areas from top to bottom to reduce circling roots. Tease the roots away from the media. Any media that falls can be mixed with the backfill to aid in the transition from the organic container media and soil.

Fill the hole halfway with soil and water thoroughly to settle the soil around the roots. After the water drains, completely fill in with soil and water again.

Mulch with 2-3 inches of material. Do not mulch too thickly and pull the mulch away from the base of the plant.

Post Planting Care
Mulch around plants to protect the root system and conserve soil moisture. Do not plant grass around the root system. Mulched plants develop more roots and establish quicker than those with grass planted up to the trunk.

Pruning at the time of planting should be limited to removing such things as broken branches and diseased wood. Removing too many live branches can delay establishment and growth.

Trunk wrapping, which is often done to newly transplanted trees to protect from sun scald, has been found to increase the incidence of certain borers such as dogwood borer and ash borer. Eggs are inserted under the wrapping, which protects the eggs and larva, thereby increasing survival. Also, canker diseases might develop if moisture builds up between the trunk and the wrapping. If used, trunk wraps should only be used during the season you are trying to protect the trunk and then removed. Always wrap from the bottom up and loosen accordingly as the trunk grows in girth.

Water new transplants carefully so the soil around the roots does
not dry out. Recommendations on the frequency and amount of water cannot be made as such things as environmental conditions, soil texture, plant size, etc. determine it. Water will initially be removed from the soil or container ball since this is the area where intact roots exist. As new roots develop and grow outside the ball, increase the area watered. Use a soil probe to remove a core of soil from the backfill and soil ball to determine soil moisture in the root zone. Do not water based solely on the moisture of the soil surface.

Wound dressings and tree paints have not been shown to reduce or prevent decay.

Tree Support Systems
Recently transplanted trees may require supplemental support in the form of staking, guying, or root ball anchoring. These tree support systems are intended to hold the tree in an upright position and limit movement of the root ball until new roots adequately anchor the tree in the soil.

However, tree support systems should only be used when necessary. A staked or guyed tree is more prone to trunk girdling and abrasion and trunk breakage than a tree that is not staked or guyed. In addition, stakes or guys that are too rigid or are left on more than one growing season can limit a tree’s ability to support its own weight. Tree support systems also increase installation and maintenance costs.

Conditions that may necessitate the installation of a tree support system are: very windy planting locations, heavy foot or vehicular traffic near planting locations, very large planting material, or late fall planting of evergreens.

If a tree support system is installed on a new transplant, there are a few basic guidelines to follow:

- Stakes or guys should always be installed low on the trunk to allow upper movement of the branches. Support systems that are too rigid will not allow the tree to develop proper taper.
- The tie material should be flat, wide, smooth, and somewhat flexible. Hose-covered wire is NOT a good tie material because it causes trunk girdling. One good alternative is polypropylene fabric ties which can be found in garden supply stores.
- The tree support system should be routinely inspected to make sure that it is fully intact and not causing any girdling or abrasion.
- In most cases, the stakes or guys can be removed after one growing season. Because they are buried and do not go around the trunk, root ball anchoring systems can be left on indefinitely.

Selecting Quality Plant Material

- Always do business with reliable and knowledgeable nurseries. Select those using the American Standard for Nursery Stock developed by the American Nursery/Landscape Association. Certification programs are available which acknowledge those individuals that have shown an understanding of horticultural principles.
- Plants grown nearby should be cold hardy. Plants can be purchased from areas of warmer hardness zones provided the plants were started from genetically hardy plants. Plants purchased from warmer areas should have adequate time to acclimate to local conditions before the onset of colder weather.
- Purchase plants from several sources and follow their performance. Establishment and growth should be recorded to determine any differences that may be caused from production and/or post harvest handling.
- Plants should be free of disease problems, insect and weed infestations, mechanical damage, and cankers.
- Plants should be pruned properly so they have acceptable form and branch structure for species.
- Well developed callus at pruning wounds is a good indicator of plant health.
- Root systems should be kept moist following harvesting.
- The base of the trunk should be free of girdling roots.
- Plants should have adequate twig growth for several years prior to harvesting.

Bare-root plants
- Bare-root material should remain dormant and root systems kept moist and protected from desiccation.
- Plant bare-root material as soon as possible.
- Root system should be adequately developed for species and age.
- Avoid or discard inferior plants.

Balled & Burlapped plants
- Trunk of plant should be within 10% of the center of the ball.
- Ball size should be appropriate for species and plant size.
- Trunk flare should be at the surface of the ball.
- Soil ball should be well shaped and intact.
Most tree species should have a well developed central leader at nursery sizes.

**Containerized plants**
- Root system should be well developed and hold the root ball together when removed from the container.
- Plants that are pot-bound or have girdling roots should be avoided.
- Plants should be the appropriate size for the container.

**Planting Hedges**

Mature plant size and spacing:
- Small formal: 6”-12”
- Small informal: 1-3 feet
- Medium: 3-4 feet
- Large: 6-8 feet

![Diagram of staggered plants in a double row]

Staggering plants in a double row is desirable for a thick hedge.

**Common ANLA Standards**

To purchase a copy of *American Standard for Nursery Stock*, ANSI Z60.1-2004, contact: AmericanHort.org, email: hello@americanhort.org, phone: 202-789-2900

**Recommended Balling and Burlapping Specifications for Four General Types of Plants**

### Spreading Conifer and Broadleaved Evergreens

<table>
<thead>
<tr>
<th>Spread (ft)</th>
<th>Diam. (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>2.5</td>
<td>18</td>
</tr>
<tr>
<td>3.5</td>
<td>26</td>
</tr>
<tr>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>5</td>
<td>36</td>
</tr>
<tr>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>7</td>
<td>46</td>
</tr>
<tr>
<td>8</td>
<td>52</td>
</tr>
</tbody>
</table>

### Pyramidal and Broad Upright Conifers and Broad-leaved Evergreens

<table>
<thead>
<tr>
<th>Height (ft)</th>
<th>Diam. (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>9</td>
<td>32</td>
</tr>
</tbody>
</table>

### Columnar Conifers and Broad-leaved Evergreens

<table>
<thead>
<tr>
<th>Height (ft)</th>
<th>Diam. (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>9</td>
<td>26</td>
</tr>
</tbody>
</table>

**Area Covered by 100 Ground Cover Plants**

<table>
<thead>
<tr>
<th>Planting Distance (inches)</th>
<th>Area Covered (sq. feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>18</td>
<td>225</td>
</tr>
<tr>
<td>24</td>
<td>400</td>
</tr>
<tr>
<td>30</td>
<td>625</td>
</tr>
<tr>
<td>36</td>
<td>900</td>
</tr>
<tr>
<td>48</td>
<td>1600</td>
</tr>
<tr>
<td>60</td>
<td>2500</td>
</tr>
</tbody>
</table>

*Example: 100 plants will cover 25 sq. ft. if spaced 6 inches apart*
### Standard Shade Trees

<table>
<thead>
<tr>
<th>Caliper (in)</th>
<th>Diam. (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>2.5</td>
<td>28</td>
</tr>
<tr>
<td>3</td>
<td>32</td>
</tr>
<tr>
<td>3.5</td>
<td>38</td>
</tr>
<tr>
<td>4</td>
<td>42</td>
</tr>
<tr>
<td>4.5</td>
<td>48</td>
</tr>
<tr>
<td>5</td>
<td>54</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>7</td>
<td>70</td>
</tr>
<tr>
<td>8</td>
<td>80</td>
</tr>
</tbody>
</table>

### Measuring Tree Caliper

- Take measurement 6” above ground for caliper up to 4” in diameter.
- Take measurement 12” above ground if caliper is over 4” in diameter.

### Approximate Weight of B&B Plants

<table>
<thead>
<tr>
<th>Ball Size (in)</th>
<th>Weight (lbs)</th>
<th>Avg. Number per 45-ft trailer</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>200</td>
<td>130</td>
</tr>
<tr>
<td>28</td>
<td>350</td>
<td>115</td>
</tr>
<tr>
<td>32</td>
<td>500</td>
<td>80</td>
</tr>
<tr>
<td>36</td>
<td>800</td>
<td>45-50</td>
</tr>
<tr>
<td>40</td>
<td>1100</td>
<td>25-30</td>
</tr>
<tr>
<td>44</td>
<td>1600</td>
<td>20-25</td>
</tr>
<tr>
<td>50</td>
<td>2000</td>
<td>15-20</td>
</tr>
</tbody>
</table>

These figures are intended as a guide only and will vary between varieties, weather conditions, and time of year.

### Ball Diameter/Depth Ratios for B&B Plants

<table>
<thead>
<tr>
<th>Diameter of Ball (in)</th>
<th>Depth of Ball</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20</td>
<td>Not less than 65% of diameter</td>
</tr>
<tr>
<td>≥ 20</td>
<td>Not less than 60% of diameter</td>
</tr>
</tbody>
</table>

---

### Pruning Times and Techniques

#### General Pruning Tips

- Never remove > 25% of the live crown of a tree in a single year
- Prune to accentuate the natural form of the plant
- Removing flower buds enhances vegetative growth
- Plants that bloom on previous season’s wood should be pruned directly after bloom to maximize flowering
- Young, vigorous plants need more frequent pruning than older, slow-growing plants
- Plants should be pruned only when a clear objective is established
- Hedge trimmers should only be used for annual pruning of thin-stemmed hedges. Even when done well, this will cause a thick profusion of twigs around the perimeter of the plant. Hedges will be healthier and more natural-looking when maintained with hand pruners
- Topping trees is strongly discouraged due to its severe impact on the health of the tree and undesirable aesthetic result
- Always remove the least amount of live branches necessary to accomplish the pruning objective.

#### Late Winter (before bud break)

- Train young shade trees planted the year before by selecting scaffold branches
- Rejuvenate evergreen and deciduous shrubs and hedges
- Best time to annually prune most vines
- Thin mature trees if necessary

#### Spring (bud break & shoot elongation)

- Best not to prune any live material on woody plants at this time due to translocation of carbohydrates and growth hormones to growing points
- Limit pruning to damaged or dead wood.

#### Summer (new shoots reach full growth and become woody)

- Shape and thin mature trees if necessary after spring growth flush
- Address the tree crown interior to remove overly-shaded, crisscrossed, or weak branches
- Alternate time to rejuvenate hedges
- For more compact growth, pinch out one half of the new growth of pines, spruces, and firs
Late Fall (after several hard frosts)
- Clip away excess ivy growth on building walls and around windows
- Alternate time to perform major pruning

Winter (after hard freezes; plants truly dormant)
- Thin crowns of mature trees if necessary
- Clip hedges to retain clean lines

Hardiness and Heat Zones

Long Island ranges in its cold hardiness from zone 6b (Pine Barrens region) to 7a (majority of Long Island), and is in heat zone 4, except the North and South Forks are heat zone 3.

**USDA Cold Hardiness Zones**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Average Annual Minimum Temperature (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Below -50</td>
</tr>
<tr>
<td>2a</td>
<td>-45 to -50</td>
</tr>
<tr>
<td>2b</td>
<td>-40 to -45</td>
</tr>
<tr>
<td>3a</td>
<td>-35 to -40</td>
</tr>
<tr>
<td>3b</td>
<td>-30 to -35</td>
</tr>
<tr>
<td>4a</td>
<td>-25 to -30</td>
</tr>
<tr>
<td>4b</td>
<td>-20 to -25</td>
</tr>
<tr>
<td>5a</td>
<td>-15 to -20</td>
</tr>
<tr>
<td>5b</td>
<td>-10 to -15</td>
</tr>
<tr>
<td>6a</td>
<td>-5 to -10</td>
</tr>
<tr>
<td>6b</td>
<td>0 to -5</td>
</tr>
<tr>
<td>7a</td>
<td>5 to 0</td>
</tr>
<tr>
<td>7b</td>
<td>10 to 5</td>
</tr>
<tr>
<td>8a</td>
<td>15 to 10</td>
</tr>
<tr>
<td>8b</td>
<td>20 to 15</td>
</tr>
<tr>
<td>9a</td>
<td>25 to 20</td>
</tr>
<tr>
<td>9b</td>
<td>30 to 25</td>
</tr>
<tr>
<td>10a</td>
<td>35 to 30</td>
</tr>
<tr>
<td>10b</td>
<td>40 to 35</td>
</tr>
<tr>
<td>11</td>
<td>40 and above</td>
</tr>
</tbody>
</table>

**AHS Heat Zones**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Average Annual Number of Days above 86°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Below 1</td>
</tr>
<tr>
<td>2</td>
<td>1-7</td>
</tr>
<tr>
<td>3</td>
<td>8-14</td>
</tr>
<tr>
<td>4</td>
<td>15-30</td>
</tr>
<tr>
<td>5</td>
<td>31-45</td>
</tr>
<tr>
<td>6</td>
<td>46-60</td>
</tr>
<tr>
<td>7</td>
<td>61-90</td>
</tr>
<tr>
<td>8</td>
<td>91-120</td>
</tr>
<tr>
<td>9</td>
<td>121-150</td>
</tr>
<tr>
<td>10</td>
<td>151-180</td>
</tr>
<tr>
<td>11</td>
<td>180-210</td>
</tr>
<tr>
<td>12</td>
<td>Above 210</td>
</tr>
</tbody>
</table>
Shrub Pruning Calendar

Table from Virginia Cooperative Extension, 2001

Key:
• = Best time to prune
× = Do not prune except to remove damage, hazards, or structural defects
Blank = Timing is not critical
D = Deciduous
E = Evergreen

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abelia</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Arborvitae</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Aucuba</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Azalea, D</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Azalea, E</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Bayberry</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Beautyberry</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Beautybush (Kolkwitzia)</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Boxwood</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Broom (Cytisus)</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Camellia, Japanese</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Camellia, Sasanqua</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Cherrylaurel</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Clethra</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Cotoneaster</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Crape Myrtle</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Daphne</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Dogwood</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Forsythia</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Fothergilla</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Gardenia</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Hibiscus</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Rose of Sharon</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Holly, D</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
</tbody>
</table>

Comments:
1. Flowers produced on new (current season) wood
2. Flowers produced on wood from past season, dormant pruning will reduce flowers
3. Make pruning cuts well below diseased wood (fire blight)
4. Remove old stems to ground yearly to renew
5. Midseason shear if a formal hedge is desired
6. Do not cut into old wood that has no leaves or needles
7. Spring/summer prune to remove azalea caterpillars and galls
8. Fall/early winter pruning can reduce winter hardiness
9. Trim candles (new growth) in half when needles are 1/2 to 2/3 their normal length
**Table from Virginia Cooperative Extension, 2001 (cont'd.)**

**Key:**
- • = Best time to prune
- × = Do not prune except to remove damage, hazards, or structural defects
- Blank = Timing is not critical
- D = Deciduous
- E = Evergreen

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holly, E</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2,5</td>
</tr>
<tr>
<td>Hydrangea, spring bloom</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Hydrangea, summer bloom</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>1</td>
</tr>
<tr>
<td>Hypericum</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>1</td>
</tr>
<tr>
<td>Indian Hawthorn</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Juniper</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>6</td>
</tr>
<tr>
<td>Leucothoe</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>4</td>
</tr>
<tr>
<td>Lilac</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2,4</td>
</tr>
<tr>
<td>Mountain laurel</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Nandina</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>1,4</td>
</tr>
<tr>
<td>Osmanthus</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>1,5</td>
</tr>
<tr>
<td>Pearlbushe</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Photinia</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>5</td>
</tr>
<tr>
<td>Pieris</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Pine, Mugo</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Pittosporum</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>1,4</td>
</tr>
<tr>
<td>Potentilla</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>2,3</td>
</tr>
<tr>
<td>Pyracantha</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2,4</td>
</tr>
<tr>
<td>Quince</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2,4</td>
</tr>
<tr>
<td>Rhododendron</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Rose</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>1,3,4</td>
</tr>
<tr>
<td>Serviceberry</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>1</td>
</tr>
<tr>
<td>Smoke Tree</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>1,4</td>
</tr>
<tr>
<td>Sumac</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>1,4</td>
</tr>
<tr>
<td>Sweetshrub</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>1</td>
</tr>
<tr>
<td>Viburnum, D</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2,4</td>
</tr>
<tr>
<td>Viburnum, E</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Weigela</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2,4</td>
</tr>
<tr>
<td>Willow, Pussy</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Witchhazel</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>2</td>
</tr>
<tr>
<td>Yew</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>×</td>
<td>×</td>
<td>×</td>
<td>5</td>
</tr>
</tbody>
</table>

**Comments:**
1. Flowers produced on new (current season) wood
2. Flowers produced on wood from past season, dormant pruning will reduce flowers
3. Make pruning cuts well below diseased wood (fire blight)
4. Remove old stems to ground yearly to renew
5. Midseason shear if a formal hedge is desired
6. Do not cut into old wood that has no leaves or needles
7. Spring/summer prune to remove azalea caterpillars and galls
8. Fall/early winter pruning can reduce winter hardiness
9. Trim candles (new growth) in half when needles are 1/2 to 2/3 their normal length
## Deciduous Tree Pruning Calendar

### Table from Virginia Cooperative Extension, 2009

Legend:

- * = Best time to prune
- x = Do not prune except to correct damage, hazards, or structural defects
- - = Timing is not critical

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ailanthus</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alder</td>
<td>*</td>
<td>*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>*</td>
</tr>
<tr>
<td>Ash</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bald Cypress</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Beech</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Birch</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Buckeye</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Catalpa</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cherry, Flowering</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chestnut, Chinese</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Crabapple</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Crape Myrtle</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Dogwood</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Elm</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Fringe Tree</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Ginko</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Goldenraintree</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Hackberry</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hawthorn</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Hickory</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Honeylocust</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Horsechestnut</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Katsura</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Linden</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Magnolia</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Maple</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Mimosa</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mountain Ash</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mulberry</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nyssa, Black Gum</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Oak</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Peach, Flowering</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Pear, Flowering</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Comments

1. Avoid pruning in late winter/early spring due to sap flow (more cosmetic than detrimental)
2. Avoid pruning from spring through summer due to insect or disease problems
3. Avoid pruning from October - December due to reduced cold hardiness
4. Avoid pruning after July because flower buds have set
### Deciduous Tree Pruning Calendar (cont'd.)

**Table from Virginia Cooperative Extension, 2009**

Legend:
- * = Best time to prune
- x = Do not prune except to correct damage, hazards, or structural defects
- - = Timing is not critical

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plum, Flowering and Purple</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Poplar</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Redbud</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Serviceberry</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>*</td>
<td>*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Sophora</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Sourwood</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Stewartia</td>
<td>*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Sweetgum</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sycamore, Plane</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tuliptree</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Willow</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zelkova</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Comments:
1. Avoid pruning in late winter/early spring due to sap flow (more cosmetic than detrimental)
2. Avoid pruning from spring through summer due to insect or disease problems
3. Avoid pruning from October - December due to reduced cold hardiness
4. Avoid pruning after July because flower buds have set

---

**Charlie & Sons Landscapes**

1969

26 Montauk Highway, Amagansett

631.267.5354

Design | Install | Maintain

---

**Warner Nursery**

2674 Sound Ave, Baiting Hollow, NY 11933

Tel: (631) 727-1336 • Fax: (631) 727-4323

warnernursery@optonline.net

Jim Warner
Plant Award Winners
The Gold Medal Plant Program -
Growing a greener Long Island since 1999

The Long Island Gold Medal Plant Program began in 1999 and is administered by Cornell Cooperative Extension of Suffolk County. The mission of the Gold Medal Plant Program is to identify and promote exceptional ornamental plants that will thrive in the Long Island home landscape. Increased public education and awareness of sustainable plant selections are the main goals of the Program.

Four award-winning plants are selected each year, which may be trees, shrubs, perennials, vines, ground covers, grasses, or annuals. Visit www.ccesuffolk.org to see descriptions of all the award-winning plants. Gold Medal Plant Winners are identified by the Plant Selection Committee, which is a volunteer group of horticulture professionals. If you would like more information, please contact Vincent Simeone at VASimeone@aol.com.

The Gold Medal Plant Awards:

2020
- Acer triflorum
- Ilex x 'Rutzan' Red Beauty
- Itea virginica
- Helleborus x ballardiae 'HGC Pink Frost'

2019
- Deutzia gracilis
- Chamaecyparis thyoides 'Red Star'
- Alchemilla mollis
- Heptacodium miconioides

2018
- Betula nigra 'Little King'
- Taxodium distichum
- Polygonatum odoratum 'Variegatum'
- Viburnum nudum 'Winterthur' & 'Brandywine'

2017
- Nyssa sylvatica
- Osmanthus heterophyllus 'Goshiki'
- Catharanthus roseus
- Wisteria frutescens 'Amethyst Falls'

2016
- Begonia x benariensis (Whopper® and Big® Begonias)
- Pinus flexilis blue cultivars
- Paeonia Itoh series
- Cleome x Senorita Rosalita®

2015
- Coreopsis x 'Full Moon'
- Hydrangea paniculata 'Limelight'
- Aucuba japonica 'Serratifolia'
- Lagerstroemia indica x faurieri 'Natchez'

2014
- Camellia japonica April series & C. x Winter series
- Cornus florida
- Ilex crenata 'Soft Touch'
- Nepeta racemosa 'Blue Wonder'

2013
- Lonicera nitida
- Thujopsis dolabrata 'Nana'
- Quercus palustris 'Green Pillar'
- Cercis Canadensis

2012
- Acer griseum
- Amsonia hubrichtii
- Polystichum acrostichoides 'Christmas Fern'
- Chionanthus retusus

2011
- Carpinus betulus 'Frans Fontaine'
- Cornus mas 'Golden Glory'
- Sedum spurium 'John Creech'

2010
- Magnolia 'Galaxy'
- Lonicera sempervirens
- Styrax japonicus 'Pagoda'
- Salvia nemorosa 'Caradonna'

2009
- Parrotia persica
- Phlox stolonifera
- Aesculus parviflora
- Carex 'Ice Dance'

2008
- Clematis montana var. rubens
- Syringa reticulata 'Ivory Silk'
- Viburnum x burkwoodii 'Conoy'
- Geranium x cantabrigiense 'Blokovo'

2007
- Sciadopitys verticillata
- Skimmia japonica
- Abelia grandiflora 'Rose Creek'
- Panicum virgatum 'Heavy Metal'

2006
- Hibiscus syriacus 'Diana'
- Ilex pedunculosa
- Rosa 'Radyod'
- Stachys byzantina 'Helene Von Stein'

2005
- Hydrangea quercifolia
- Picea orientalis
- Prunus 'Hally Jolivette'
- Waldsteinia ternata

2004
- Hypericum frondosum 'Sunburst'
- Sorbus alnifolia
- Sarcococca hookeriana var. humilis
- Leucanthemum x superbum 'Becky'

2003
- Clethra alnifolia 'Compacta'
- Daphne x transatlantica 'Jim's Pride' (Daphne caucasica)
- Heuchera villosa 'Autumn Bride'
- Thuja plicata

2002
- Ceratostigma plumbaginoides
- Hydrangea anomala subsp. petiolaris
- Malus 'Sugar Tyme'
- Viburnum dilatatum 'Erie'

2001
- Cephalotaxus harringtonia 'Duke Gardens'
- Epimedium x perralchicum 'Fröhleinchen'
- Rudbeckia nitida 'Autumn Sun'
- Stephanandra incisa 'Crispa'

2000
- Fothergilla gardenii
- Microbiota decussata
- Stewartia pseudocamellia
- Corylopsis pauciflora
Perennial Plant of the Year

The Plant of the Year program, sponsored by the Perennial Plant Association, promotes the use of perennials. Each year members cast their vote for an outstanding perennial with the following criteria:

- Suitable for a wide range of climate types
- Low maintenance needs
- Easily propagated – true from seed or vegetatively propagated
- Exhibits multiple seasonal interest

Perennial Plant of the Year Index

2020  Aralia cordata ‘Sun King’
2019  Stachys monieri ‘Hummelo’
2018  Allium ‘Millenium’
2017  Asclepias tuberosa
2016  Anemone × hybrida ‘Honorable Jobert’
2015  Geranium × cantabrigiense ‘Biokovo’
2014  Panicum virgatum ‘Northwind’
2013  Polygonatum odoratum ‘Variegatum’
2012  Brunnera macrophylla ‘Jack Frost’
2011  Amsonia hubrichtii
2010  Baptisia australis
2009  Hakonechloa macra ‘Aureola’
2008  Geranium roseum
2007  Nepeta ‘Walker’s Low’
2006  Dianthus gratianopolitanus ‘Feuerhexe’ (Firewitch)
2005  Helleborus × hybridus
2004  Athyrium niponicum ‘Pictum’
2003  Leucanthemum ‘Becky’
2002  Phlox paniculata ‘David’
2001  Calamagrostis × acutiflora ‘Karl Foerster’
2000  Scabiosa columbaris ‘Butterfly Blue’
1999  Rudbeckia fulgida var. sullivantii ‘Goldsturm’
1998  Echinacea purpurea ‘Magnus’
1997  Salvia ‘May Night’
1996  Penstemon digitalis ‘Husker Red’
1995  Perovskia atriplicifolia
1994  Astilbe ‘Sprite’
1993  Veronica ‘Atricifolia’
1992  Coreopsis verticillata ‘Moonbeam’
1991  Heuchera micrantha ‘Palace Purple’
1990  Phlox stolonifera

Cross Reference for Common Names of Herbaceous Perennials

A

Aaron’s Beard  Hypericum
Adam’s Needle  Yucca
Alpine Geranium  Erodium
Alpine Strawberry  Fragaria
Anemone  Pulsatilla
August Lily  Hosta
Avens  Geum

B

Baby’s Breath  Gypsophila
Balloflower  Platyctodon
Basket of Gold  Alyssum
Beard Tongue  Penstemon
Bearded Iris  Iris germanica
Bedstraw  Galium
Bee Balm  Monarda
Bellflower  Campanula
Bishop’s Hat  Epimedium
Black Sedge  Carex nigra
Black-eyed Susan  Rudbeckia
Blanket Flower  Gaillardia
Bleeding Heart  Dicentra
Blood root  Sanguinaria
Blue Oat Grass  Helictotrichon
Border Pinks  Veronicastrum
Bowman’s Root  Cimicifuga
Bugbane  Ajuga
Bulgeweed  Coreopsis
Butter Daisey  Asclepias
Butterfly Weed  Asclepias

C

Candytuft  Iberis
Cardinal Flower  Lobelia
Catmint  Nepeta
Chinese Lantern  Physalis
Christmas Rose  Helleborus niger
Cinquefoil  Potentilla
Columbine  Aquilegia
Coneflower  Echinacea
Coral Bells  Heuchera
Cornflower  Centaurea
Cranesbill  Geranium
Creeping Phlox  Phlox subulata
Culver’s Root  Veronicastrum

D

Daisy  Chrysanthemum
Daylily  Hemerocallis
Dead Nettle  Lamium/Lamiastrum
Dropwort  Filipendula
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E</strong></td>
<td><strong>F</strong></td>
<td><strong>G</strong></td>
</tr>
<tr>
<td>Elephant Ears</td>
<td>Bergenia</td>
<td>Gay Feather</td>
</tr>
<tr>
<td>English Daisy</td>
<td>Bellis</td>
<td>Germander</td>
</tr>
<tr>
<td>Evening Primrose</td>
<td>Oenothera</td>
<td>Ginger</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>H</strong></th>
<th><strong>I</strong></th>
<th><strong>J</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hens &amp; Chicks</td>
<td>Sempervivum</td>
<td>Jack in the Pulpit</td>
</tr>
<tr>
<td>Heronsbill</td>
<td>Erodium</td>
<td>Jacob's Ladder</td>
</tr>
<tr>
<td>Hollyhock</td>
<td>Alcea</td>
<td>Japanese Iris</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>K</strong></th>
<th><strong>L</strong></th>
<th><strong>M</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairy Candles</td>
<td>Cimicifuga</td>
<td>Mallow</td>
</tr>
<tr>
<td>False Dragonhead</td>
<td>Physostegia</td>
<td>Marguerite Daisy</td>
</tr>
<tr>
<td>False Indigo</td>
<td>Baptisia</td>
<td>Maryland Pinkroot</td>
</tr>
<tr>
<td>False Mallow</td>
<td>Sidalcea</td>
<td>Masterwort</td>
</tr>
<tr>
<td>False Spirea</td>
<td>Astilbe</td>
<td>Meadow Rue</td>
</tr>
<tr>
<td>False Starwort</td>
<td>Boltonia</td>
<td>Meadow Sage</td>
</tr>
<tr>
<td>False Sunflower</td>
<td>Heliopsis</td>
<td>Meadowsweet</td>
</tr>
<tr>
<td>Feather Reed Grass</td>
<td>Calamagrostis</td>
<td>Michaelmas Daisy</td>
</tr>
<tr>
<td>Fescue</td>
<td>Festuca</td>
<td>Monkshood</td>
</tr>
<tr>
<td>Flax</td>
<td>Linum</td>
<td>Mondo Grass</td>
</tr>
<tr>
<td>Fleabane</td>
<td>Erigeron</td>
<td>Moss Pinks</td>
</tr>
<tr>
<td>Foamflower</td>
<td>Tiarella</td>
<td>Mullein</td>
</tr>
<tr>
<td>Fountain Grass</td>
<td>Pennisetum</td>
<td>New York Aster</td>
</tr>
<tr>
<td>Fox's Brush</td>
<td>Centranthus</td>
<td>Northern Sea Oats</td>
</tr>
<tr>
<td>Foxglove</td>
<td>Digitalis</td>
<td>Oat Grass</td>
</tr>
<tr>
<td>Fume Root</td>
<td>Corydalis</td>
<td>Obedient Plant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>P</strong></th>
<th><strong>Q</strong></th>
<th><strong>R</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pampas Grass</td>
<td>Cortaderia</td>
<td>Rock Cress</td>
</tr>
<tr>
<td>Pasque Flower</td>
<td>Pulsatilla</td>
<td>Rock Rose</td>
</tr>
<tr>
<td>Pearlwort</td>
<td>Minuartia</td>
<td>Roger's Flower</td>
</tr>
<tr>
<td>Peony</td>
<td>Paeonia</td>
<td>Rush</td>
</tr>
<tr>
<td>Pincushion Flower</td>
<td>Scabiosa</td>
<td>Russian Sage</td>
</tr>
<tr>
<td>Pinks</td>
<td>Dianthus</td>
<td>Sage</td>
</tr>
<tr>
<td>Plantain Lily</td>
<td>Hosta</td>
<td>Sea Thrift</td>
</tr>
<tr>
<td>Plumbago</td>
<td>Ceratostigma</td>
<td>Seaside Daisy</td>
</tr>
<tr>
<td>Plume Grass</td>
<td>Erianthus</td>
<td>Siberian Iris</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>S</strong></th>
<th><strong>T</strong></th>
<th><strong>U</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sage</td>
<td>Salvia</td>
<td>Rock Cress</td>
</tr>
<tr>
<td>Sea Thrift</td>
<td>Armeria</td>
<td>Rock Rose</td>
</tr>
<tr>
<td>Seaside Daisy</td>
<td>Erigeron</td>
<td>Roger's Flower</td>
</tr>
<tr>
<td>Siberian Iris</td>
<td>Iris siberica</td>
<td>Rush</td>
</tr>
</tbody>
</table>
Cross Reference for Common Names of Woody Ornamentals

A
Abelia
Alder
Andromeda, Japanese
Apple, Fruiting
Arborvitae
Arrowwood
Ash
Aspen
Azalea
Actaea (syn. Cimicifuga)
Helenium
Cerastium
Saponaria
Polygonatum
Hypericum
Sedum
Asclepias
Lathyrus
Galium
Panicum

B
Bald cypress
Basswood
Bayberry
Bearberry
Beautyberry
Beech
Birch
Taxodium
Tilia
Morella
Arctostaphylos
Callicarpa
Kolkwitzia
Fagus
Betula

C
Catalpa
Cedar
Cherry
Cherry Laurel
Cherry, Kwanzan
Chokey
Cinquefoil
Coffee tree
Coralberry
Cornelian cherry
Cotoneaster
Crabapple, flowering
Crypomeria
Cucumber tree
Cypress (false)
Cypress, bald
Cypress, Hinoki False
Bittersweet
Black Gum
Blackhaw
Blueberry
Boxwood
Broom
Buckeye
Celastrus scandens
Nyssa
Viburnum prunifolium
Vaccinium
Buxus
Cytisus
Aesculus

D
Dawn Redwood
Deutzia
Dogwood
Douglas-Fir
Dove-tree
Metasequoia glyptostroboides
Deutzia
Cornus, Benthamidia
Pseudotsuga
Davidia

E
Elm
Ulmus

F
False Cypress
Filbert
Fir
Firethorn
Fothergilla
Franklinia
Fringetree
Chamaecyparis
Corylus
Abies
Pyracantha
Fothergilla
Franklinia alatamaha
Chionanthus

G
Ginkgo
Golden Rain Tree
Golden chain tree
Ginkgo
Koelreuteria
Laburnum

H
Hackberry
Hawthorn
Heath
Heather
Hemlock
Celtis
Crataegus
Erica
Calluna
Tsuga
Hickory
Holly
Holly, False
Holly, Japanese
Honeylocust
Hophornbeam
Hornbeam
Horsechestnut
Hydrangea

I
Inkberry
Ironwood

J
Japanese Pagodatree
Juniper

K
Kerria (Japanese)

L
Larch
Lawson cypress
Lilac
Linden
London Plane Tree
Longstalk Holly

M
Maackia
Magnolia
Maidenhair-tree
Maple
Maple, Japanese
Mimosa
Mock Orange
Mountain Ash
Mountain Laurel

N
Nannyberry

O
Oak
Osage Orange

P
Pagoda Tree
Pawpaw
Pear
Persian Parrotia
Persimmon
Pine
Planetree
Plum
Plum, Beach

Q
Quince

R
Redbud
Rhododendron
Rose
Rose-of-Sharon
Rubber tree (hardy)

S
Sassafras
Scholar-tree
Serviceberry
Silverbell
Smoke Tree
Sourgum
Sourwood
Spruce
St. Johnswort
Stewartia
Sumac
Summersweet
Sweetgum
Sweetshrub
Sweetspire
Sycamore

T
Tuliptree
Tupelo

V
Viburnum
Virginia creeper

W
Walnut
Weigela
Willow
Winterberry
Witchhazel

Y
Yellowwood
Yew

Z
Zelkova

Taxodium
Populus
Ilex decidua
Chaenomeles
Cercis
Rosa
Hibiscus
Eucommia
Sassafras
Styphnolobium japonicum
Amelanchier
Halesia
Cotinus
Nyssa
Oxydendrum
Picea
Hypericum
Stewartia
Rhus
Clethra alnifolia
Liquidambar
Calycanthus floridus
Itea
Platanus

Sassafras
Styphnolobium japonicum

Viburnum
Parthenocissus quinquefolia

Juglans
Weigela
Salix
Ilex verticillata
Hamamelis

Cladrastis
Taxus
**Dioecious Plants**
Dioecious means “two houses” and is a term used to describe species where male and female flowers exist on separate plants. Dioecious plants require the presence of both male and female plants if fruit production is desired. Fruit production may be wanted for ornamental characteristics or breeding programs in which case, both sexes need to be present to ensure fruit production. In other situations, where fruit is offensive due to unpleasant odors or litter problems, planting male cultivars is the only way to guarantee that fruit will not develop.

Following is a partial list of genera with one or more dioecious species:

<table>
<thead>
<tr>
<th>Acer</th>
<th>Ginkgo</th>
<th>Salix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aucuba</td>
<td>Gymnocladus</td>
<td>Skimmia</td>
</tr>
<tr>
<td>Cephalotaxus</td>
<td>Ilex</td>
<td>Taxus</td>
</tr>
<tr>
<td>Chionanthus</td>
<td>Juniperus</td>
<td></td>
</tr>
<tr>
<td>Cotinus</td>
<td>Lindera</td>
<td></td>
</tr>
<tr>
<td>Fraxinus</td>
<td>Morella</td>
<td></td>
</tr>
</tbody>
</table>

**Assuring Holly Berries**
One male plant can pollinate many closely related female species in the vicinity as long as flowering occurs at the same time. Fruit production does not guarantee viable seed.

The following male hollies
- *Ilex* ‘China Boy’
- *Ilex* × *meserveae* ‘Blue Prince’
- ‘Blue Stallion’

can pollinate the following female hollies.
- *Ilex aquifolium* (English)
- *Ilex aquipernyi* ‘Dragon Lady’
- *Ilex* ‘China Girl’
- *Ilex* × *meserveae* ‘Blue Angel’
- ‘Blue Maid’
- ‘Blue Princess’
- ‘Golden Girl’

The following male holly
- *Ilex verticillata* ‘Early Male’

can pollinate the following female hollies.
- *Ilex verticillata* ‘Bright Horizon’
- *Ilex verticillata* ‘Sparkleberry’
- *Ilex verticillata* ‘Early Bright’
- *Ilex verticillata* ‘Winter Red’

The following male holly
- *Ilex verticillata* ‘Raritan Chief’

can pollinate the following females:
- *Ilex verticillata* ‘Autumn Glow’
- *Ilex verticillata* ‘Scarlet O’Hara’
- *Ilex verticillata* ‘Bonfire’
- *Ilex verticillata* ‘Sparkleberry’
- *Ilex verticillata* ‘Harvest Red’
- *Ilex verticillata* ‘Winter Red’
- *Ilex verticillata* ‘Red Sprite’

**Invasive Plants**

**What is an invasive species?**
An invasive species is legally defined as an organism that is not native to the ecosystem under consideration AND whose introduction causes or is likely to cause harm to the environment, economy, and/or human health.

**What makes a plant invasive?**
The following characteristics allow a plant to adapt quickly to a new environment, thrive, and spread. Most invasive plants possess one or more of these characteristics:
- Abundant reproduction
- Rapid growth rate
- Short generation time
- Ability to occupy many different habitats
- Ability to adapt to changing environments
- Effective seed dispersal
- Long-lived seeds
- Poisonous or allergenic to other organisms

It should be noted that only a very small percentage of all the non-native species in the United States are actually invasive. However, this small percentage is able to cause an incredible amount of damage to native ecosystems.

**What is being done about invasive plants on Long Island?**
Representatives from federal, state, and county agencies and private organizations across Long Island have come together and recognized the problem of invasive species. In 2007, both Nassau and Suffolk Counties passed legislation that prohibited the sale, transport, distribution, and propagation of dozens of invasive plants. This list of invasive plants has been termed the “Do Not Sell List.” Banned plants currently on the Do Not Sell List are listed in Table 1. Invasive plants to be added to the Do Not Sell List are listed in Table 2 along with their ban date.

The Nassau and Suffolk Counties’ invasive plant legislation is similar to legislation passed in other localities such as the State of Connecticut and the Commonwealth of Massachusetts. Connecticut began banning the sale, transport, distribution, and propagation of select invasive plants May 2004. Massachusetts began banning the importation of select invasive plants January 1st, 2006.
What can I do about invasive plants?

Educate yourself and your clients on how to identify invasive plants. Start with your own nursery or landscape and make sure to not sell or plant species that are on the Do Not Sell and Management Lists. Consider growing or planting species native to Long Island or the Northeast. Native plants seem to be gaining in popularity and this may be a growing niche market that you can capitalize on. However, be sure to remember that there are also many non-native, NON-invasive ornamental plants that also make great selections. If you are planting in a tough location, you will have more choices in your plant palette if you use both natives and non-invasive, non-natives.

For more information:

• Cornell Cooperative Extension of Suffolk County
  www.ccesuffolk.org

• Long Island Invasive Species Management
  www.nyis.info/?action=liisma_pages

• New York Invasive Species Clearinghouse
  www.nyis.info

• New York Flora Atlas
  www.newyork.plantatlas.usf.edu

• Invasive Plants of the Eastern United States
  www.invasive.org/eastern/

• The Global Invasive Species Database
  www.issg.org/database/welcome/

• Brooklyn Botanic Garden, 1000 Washington Avenue
  Brooklyn, NY 11225, 718-623-7200 • www.bbg.org

• Nassau County Local Law 24-2007 (Amended LL 22-2010):
  www.nassaucountyny.gov/agencies/Legis/local.html

• Suffolk County Local Law 22-2007 (Amended LL 51-2010 & LL
  30-2015): Chapter 278A Article 2
  http://legis.suffolkcountyny.gov/main.html

• Alvey, A.A. 2013. Finding Alternatives to Invasive Ornamental
  Plants in New York. Cornell Cooperative Extension. 126 pp


• Randall, J. and J. Marinelli, 1996. Invasive Plants: Weeds of
  the Global Garden. Brooklyn Botanic Garden Publications,
  Handbook #149 in the 21st Century Gardening Series, Science
  Press, a division of the Mack Printing Group.

---

### Table 1: The Do Not Sell List

<table>
<thead>
<tr>
<th>Plants (including cultivars) currently banned in Nassau and Suffolk Counties as of 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer platanoides (including all red &amp; green cultivars)</td>
</tr>
<tr>
<td>Acer pseudoplatanus</td>
</tr>
<tr>
<td>Alliaria petiolata</td>
</tr>
<tr>
<td>Ampelopsis brevipedunculata</td>
</tr>
<tr>
<td>Anthriscus sylvestris</td>
</tr>
<tr>
<td>Aralia elata</td>
</tr>
<tr>
<td>Artemisia vulgaris</td>
</tr>
<tr>
<td>Berberis thunbergii (includes all hybrids with other Berberis species)</td>
</tr>
<tr>
<td>Brachypodium sylvaticum</td>
</tr>
<tr>
<td>Cabomba caroliniana</td>
</tr>
<tr>
<td>Cardamine impatiens</td>
</tr>
<tr>
<td>Celastrus orbiculatus</td>
</tr>
<tr>
<td>Centaurea stoebe ssp. micranthos</td>
</tr>
<tr>
<td>Cirsium arvense</td>
</tr>
<tr>
<td>Clematis terniflora</td>
</tr>
<tr>
<td>Cynanchum louiseae</td>
</tr>
<tr>
<td>Cynanchum rossicum</td>
</tr>
<tr>
<td>Dioscorea polystachya</td>
</tr>
<tr>
<td>Egeria densa</td>
</tr>
<tr>
<td>Elaeagnus umbellata</td>
</tr>
<tr>
<td>Elaeagnus fortunei</td>
</tr>
<tr>
<td>Euphorbia cyparissias</td>
</tr>
<tr>
<td>Fallopia japonica</td>
</tr>
<tr>
<td>Frangula alnus</td>
</tr>
<tr>
<td>Glyceria maxima</td>
</tr>
<tr>
<td>Humulus japonicus</td>
</tr>
<tr>
<td>Hydrocharis morsus-ranae</td>
</tr>
<tr>
<td>Imperata cylindrica (except ‘Red Baron’)</td>
</tr>
<tr>
<td>Iris pseudacorus</td>
</tr>
<tr>
<td>Lepidium latifolium</td>
</tr>
<tr>
<td>Lespedeza cuneata</td>
</tr>
<tr>
<td>Ligustrum obtusifolium</td>
</tr>
<tr>
<td>Lonicera x bella</td>
</tr>
<tr>
<td>Lonicera japonica</td>
</tr>
<tr>
<td>Lonicera maackii</td>
</tr>
<tr>
<td>Lonicera morrowii</td>
</tr>
<tr>
<td>Lonicera tatarica</td>
</tr>
<tr>
<td>Ludwigia grandiflora</td>
</tr>
<tr>
<td>Ludwigia peploides</td>
</tr>
<tr>
<td>Lythrum salicaria</td>
</tr>
<tr>
<td>Miscanthus sinesis</td>
</tr>
<tr>
<td>Microstegium vimineum</td>
</tr>
<tr>
<td>Myriophyllum aquaticum</td>
</tr>
<tr>
<td>Murdannia keisak</td>
</tr>
<tr>
<td>Myriophyllum aquaticum</td>
</tr>
<tr>
<td>Parrot feather, Brazilian water-milfoil</td>
</tr>
</tbody>
</table>
Myriophyllum heterophyllum  Broadleaf water-milfoil
Myriophyllum spicatum  Eurasian water-milfoil
Nymphoides peltata  Yellow floating heart
Oplismenus hirtellus  Wavy leaf basketgrass
Persicaria perfoliata  Reed canary-grass
Phalaris arundinacea  Amur corktree
Phellodendron amurense  European common reed grass
Potamogeton crispus  Curly pondweed
Pueraria montana var. lobata  Kudzu
Rubus phoenicolasius  Wineberry
Salix atrocinerea/ cinerea  Gray florist’s willow
Silphium perfoliatum var. perfoliatum  Cup-plant
Trapa natans  Water chestnut
Vitex rotundifolia  Beach vitex, Roundleaf chastetree

Table 3: The Management List
(Moderately invasive plants NOT banned in Nassau and Suffolk Counties)

Acer ginnala  Amur maple
Acer palmatum  Japanese maple
Aegopodium podagraria  Goutweed
Agrostis gigantea  Redtop, Black bentgrass
Agrostis stolonifera  Creeping bentgrass
Ailanthus altissima  Tree-of-heaven
Aira caryophyllea  Silver hairgrass
Akebia quinata  Fiveleaf Akebia, Chocolate vine
Allium vineale  Field garlic
Alnus glutinosa  European or Black alder
Amorpha fruticosa  False indigo
Arthraxon hispidus  Arthraxon
Arundinaria gigantea  Canebreak, Giant cane
Berberis vulgaris  Common or European barberry
Bromus tectorum  Cheat grass, Drooping brome
Butomus umbellatus  Flowering rush
Carex kobomugi  Japanese sedge, Asiatic sand sedge
Centarea jacea  Black knapweed
Cercidiphyllum japonicum  Katsuratree
Coronilla varia  Crown vetch
Cyperus difformis  Variable flat sedge
Datura stramonium  Jimsonweed
Digitalis purpurea  Purple foxglove
Elaeagnus angustifolia  Russian-olive
Elaeagnus ciliata  Crested elsholtzia
Epilobium hirsutum  Hairy willow herb, Codlins and cream
Erigeron annuus  Weeping love grass
Euphorbia esula  European spindletree
Euphorbia lathyris  Leafy spurge
Festuca filiformis  Caper spurge
Fallopia baldschuanica  Silver lace or fleece vine
Festuca filiformis  Hair fescue, Fineleaf sheep fescue
Froelichia gracilis  Cottonweed
Galega officinalis  Professor weed, Goat’s rue
Geranium nepalense  Nepalese crane’s-bill
Glaucium flavum  Sea poppy, Yellow horned poppy
Glechoma hederacea  Ground-ivy
Hedera helix  English ivy
Heracleum mantegazzianum  Giant hogweed
Hesperis matronalis  Dame’s rocket
Ipomoea hederacea  Morning glory
Kochia scoparia  Mexican summer-cypress
Ligustrum vulgare  Shrubby bush clover
Lespedeza bicolor/ thunbergii  European privet
Lespedeza bicolor/ thunbergii  European privet
Ligustrum vulgare  European privet
Lotus corniculatus
Lychnis flos-cuculi
Lysimachia nummularia
Lysimachia punctata
Lysimachia vulgaris
Morus alba
Nasturtium officinale
Nelumbo nucifera
Onopordum acanthium
Omphalodes umbellatum
Paulownia tomentosa
Persicaria longiseta
Phleum pratense
Phyllostachys spp.
Pinus thunbergii
Poa compressa
Poa pratensis
Populus alba
Prunus avium
Prunus cerasus
Prunus padus
Pseudosasa japonica
Pyrus calleryana
Ranunculus repens
Rhamnus frangula
Rosa rugosa
Rubus bifrons
Rubus laciniatus
Rumex acetosella
Saponaria officinalis
Schedonorus arundinaceus
Senecio jacobaea
Solanum dulcamara
Spiraea japonica
Styrax japonicus
Tribulus terrestris
Tussilago farfara
Ulmus pumila
Valeriana officinalis
Veronica officinalis
Viburnum dilatatum
Viburnum opulus var. opulus
Viburnum sieboldii
Vicia cracca
Vinca minor
Wisteria sinensis/ floribunda

Bird’s foot trefoil
Ragged robin
Creeping Jenny, Moneywort
Spotted loosestrife
Garden loosestrife
White mulberry
Watercress
Sacred lotus
Scotch cotton-thistle
Star-of-Bethlehem
Princess tree
Creeping smartweed
Timothy
Bamboo
Japanese black pine
Canada bluegrass
Kentucky bluegrass
White poplar
Sweet cherry
Sour red cherry
European bird cherry
Arrow bamboo
Callery pear
Creeping buttercup
Jetbead
Smooth buckthorn
Japanese or Rugosa rose
Himalayan blackberry
Evergreen blackberry
Sheep sorrel
Bouncing bet
Tall fescue
Tansy ragwort
Trailing nightshade
Japanese spirea
Japanese snowbell
Puncture vine
Coltsfoot
Siberian elm
Common valerian
Speedwell
Linden arrowwood
European cranberry bush
Siebold Viburnum
Cow vetch
Periwinkle
Chinese and Japanese wisteria

PROFESSIONAL TREE SURGEONS SUPPLY, INC.
The best professional arborist and turf products brought to
you by the green supply professionals

FERTILIZERS · SOIL AMENDMENTS · BIOSTIMULANTS · INSECT CONTROLS · FUNGICIDES · WEED CONTROLS · LIQUID REPELLENTS · GRANULAR REPELLENTS · ANTI-DESIICCANTS · PLANT WASH · RODENT CONTROL · TREE INJECTIONS · CLIMBING ROPE · RIGGING ROPE · RIGGING SUPPLIES · CABLE SUPPLIES · CLIMBING SADDLES · BUCKET TRUCK HARNESSSES · PRUNING SUPPLIES · POSTING SIGNS & STAKES · PERSONAL PROTECTION

Long Island’s Leading Distributor of Organics and Natural Products for Turf & Trees! Call or stop in to see what we have to offer your lawn or tree programs!

FREE DELIVERY MONDAY - FRIDAY

580 WEST HOFFMAN AVENUE
LINDENHURST NY 11757
P: 631-957-0301
F: 631-957-6109
E: HeatherRaso4@gmail.com

Serving the Green Industry since 1958
Alternatives to Ornamental Invasive Plants

Invasive Plants Banned on Long Island & Their Alternatives with Respective Ban Dates
(Plants on the Do Not Sell List)

Long Island Invasive Species Management Area
http://www.nyis.info/?action=liisma_pages

Norway Maple Acer platanoides z 1/1/2013
Freeman Maple Acer x freemanii
Red Maple Acer rubrum
Sugar Maple Acer saccharum
Lacebark Elm Ulmus parvifolia

For red cultivars of A. platanoides including ‘Crimson King’ and ‘Royal Red’ 1/1/2016
Eastern Redbud Cercis canadensis (Purple cultivars)
European Beech Fagus sylvatica (Purple cultivars)
Chokecherry Prunus virginiana (Purple cultivars)

Porcelain-berry Ampelopsis brevipedunculata x 1/1/2009
Bodinier or Purple Beautyberry Callicarpa bodinieri; C. dichotoma
Trumpet Honeysuckle Lonicera sempervirens
Coralberry Symphoricarpos orbiculatus & hybrids

Japanese Angelica Tree Aralia elata x 1/1/2009
For variegated cultivars of A. elata:
Pagoda Dogwood Cornus alternifolia (Variegated cultivars)
Kousa Dogwood Cornus kousa (Variegated cultivars)
Staghorn Sumac Rhus typhina (Cutleaf cultivars)

Japanese Barberry Berberis thunbergii x 1/1/2014
For dwarf purple cultivars of B. thunbergii:
Old Fashioned Weigela Weigela florida (Dwarf purple cultivars)

For standard purple cultivars of B. thunbergii:
Smokebush Cotinus coggygria (Purple cultivars)
Eastern Ninebark Physocarpus opulifolius (Purple cultivars)
Old Fashioned Weigela Weigela florida (Large, purple cultivars)

For yellow or gold cultivars of B. thunbergii:
Glossy Abelia Abelia x grandiflora (Yellow cultivars)
Border or Greenstem Forsythia Forsythia x intermedia; F. viridissima (Yellow cultivars)

For green cultivars of B. thunbergii:
Cranberry Cotoneaster Cotoneaster apiculatus
Bush Cinquefoil Potentilla fruticosa
Fragrant Sumac Rhus aromatica (Dwarf cultivars)

Old Fashioned Weigela Weigela florida

Sweetautumn Clematis or Japanese Virgin’s Bower Clematis terniflora z 1/1/2011
Anemone Clematis Clematis montana
Virgin’s Bower Clematis virginiana
Climbing Hydrangea Hydrangea anomala subsp. petiolaris

Autumn-olive Elaeagnus umbellata x 1/1/2009
Eastern Baccharis Baccharis halimifolia
Sweetfern Comptonia peregrina
Northern Bayberry Morella caroliniensis

Winged Euonymus or Burning Bush Euonymus alatus z 1/1/2016
Red** or Black** Chokeberry Aronia arbutifolia; A. melanocarpa
Dwarf*, Hybrid*, or Large* Fothergilla Fothergilla gardenii; F. x intermedia; F. major
Virginia Sweetspire Itea virginica
Doublefile Viburnum Viburnum plicatum var. tomentosum

---

z Regulated under Regulation 6 NYCRR Part 575 Prohibited & Regulated Invasive Species.
*Prohibited under Regulation 6 NYCRR Part 575 Prohibited & Regulated Invasive Species.
(Berberis thunbergii prohibited on the Suffolk County Do Not Sell List & prohibited under State law after March 2016.
* Native to the United States
** Native to New York State (hybrids and cultivars of native species included)
Wintercreeper Euonymus * Euonymus fortunei z 1/1/2013
For the groundcover habit of *E. fortunei*:
  - Bearberry** Arctostaphylos uva-ursi
  - Bearberry Cotoneaster Cotoneaster dammeri
  - Willowleaf Cotoneaster Cotoneaster salicifolius (Low-growing cultivars)
  - Creeping Raspberry *Rubus calycinoides (Rubus pentalobus)

For the shrub habit of *E. fortunei*:
  - Dwarf Japanese Aucuba *Aucuba japonica* (Dwarf cultivars)
  - Japanese Skimmia *Skimmia japonica*

Yellow Flag Iris *Iris pseudacorus x* 1/1/2012
- Louisiana Irises* Iris spp. (Yellow flowering cultivars)
- Japanese Iris *Iris ensata*
- Blueflag Iris** Iris versicolor

Bell, Amur, Morrow, and 1/1/2011
Tatarian Shrub Honeysuckle x
* Lonicera x bella; L. maackii; L. morrowii; L. tatarica
  - Deutzia *Deutzia spp.*
  - Beautybush *Kolkwitzia amabilis*
  - Mockorange* (some species native to U.S.)
    *Philadelphus spp.*
  - Nippon or Vanhoutte Spirea *Spiraea nipponica; S. x vanhouttei*

Japanese Honeysuckle *Lonicera japonica x* 1/1/2011
- Crossvine* *Bignonia capreolata*
- Carolina Yellow Jessamine* *Gelsemium sempervirens* (Cold hardy cultivars)
- Goldflame Honeysuckle *Lonicera x heckrottii*
- Trumpet Honeysuckle** *Lonicera sempervirens*

Purple Loosestrife *Lythrum salicaria x* 1/1/2009
- Meadowsweet *Filipendula purpurea; F. rubra* *
- Dense Blazing Star* *Liatris spicata*
- Obedient Plant** *Physostegia virginiana*
- Perennial Sage *Salvia nemorosa (S. x superba; S. x sylvestris)*

Japanese Silver Grass or Maiden Grass z 1/1/2016
*Miscanthus sinensis*
  - Feather Reed Grass *Calamagrostis x acutiflora*
  - Korean Feather Reed Grass *Calamagrostis brachytricha*
  - Pink Muhly Grass** *Muhlenbergia capillaris*
  - Switchgrass** *Panicum virgatum*

Amur Corktreet *Phellodendron amurense x* 1/1/2013
- Honeylocust* *Gleditsia triacanthos var. inermis*
- Kentucky Coffeetree** *Gymnocladus dioicus*
- Lacebark Elm *Ulmus parvifolia*

Black Locust *Robinia pseudoacacia z* 1/1/2013
For gold cultivars of *R. pseudoacacia*:
- Honeylocust* *Gleditsia triacanthos var. inermis* (Gold cultivars)

Moderately Invasive Plants NOT Banned on Long Island & Their Alternatives (Plants on the Management List)

Amur Maple *Acer ginnala*
  - Trident Maple *Acer buergerianum*
  - Eastern Redbud* *Cercis canadensis*
  - Red Buckeye *Aesculus*

Russian-olive *Elaeagnus angustifolia*
- Chinese or White*Fringetree *Chionanthus retusus; C. virginicus*
- Corkscrew Willow *Salix matsudana*
- Chastetree *Vitex agnus-castus*

English Ivy *Hedera helix*
- Crossvine* *Bignonia capreolata*
- Carolina Yellow Jessamine* *Gelsemium sempervirens* (Cold hardy cultivars)
- Climbing Hydrangea *Hydrangea anomala subsp. petiolaris*
- Japanese Hydrangea-vine *Schizophragma hydrangeoides*

Creeping Jenny or Moneywort *Lysimachia nummularia*
- Green and Gold* *Chrysogonum virginianum*
- Spotted Dead Nettle *Lamium maculatum*
- Creeping Mazus *Mazus reptans*
- Siberian Barren-strawberry *Waldsteinia ternata*
For gold cultivars of *L. nummularia*:
- **Coral** or **Foamy Bells** *Heuchera*; **X Heucherella** (Gold cultivars)
- **Goldmoss Stonecrop** *Sedum acre*
- **Japanese Stonecrop** *Sedum makinoi* (Gold cultivars)
- **Creeping Speedwell** *Veronica prostrata*; **V. repens** (Gold cultivars)

**Japanese Black Pine** *Pinus thunbergii*
- **Limber Pine** *Pinus flexilis*
- **Japanese White Pine** *Pinus parviflora*
- **Pitch Pine** *Pinus rigida*

**Callery Pear** *Pyrus calleryana*
- **Downy**, **Apple**, or **Allegheny** **Serviceberry**
- **Amelanchier arborea**; **A. x grandiflora**; **A. laevis**
- **Hybrid Dogwood** *Cornus* spp.
- **Green Hawthorn** *Crataegus viridis*
- **Loebner** or **Star Magnolia** *Magnolia x loebneri*; **M. stellata**

**Rugosa Rose** *Rosa rugosa*
- **Bush Cinquefoil** *Potentilla fruticosa*
- **Beach Plum** *Prunus maritima*
- **Shrub Roses** *Rosa* spp.
- **Virginia Rose** *Rosa virginiana*

**Common Periwinkle** *Vinca minor*
- **Barrenwort** *Epimedium x perralchicum*; **E. x versicolor**
- **Creeping Mazus** *Mazus reptans*
- **Creeping Phlox** *Phlox stolonifera*
- **Dwarf Sweetbox** *Sarcococca hookeriana var. humilis*

**Japanese and Chinese Wisteria**
- **Wisteria floribunda**; **W. sinensis**
- **Climbing Hydrangea** *Hydrangea anomala* subsp. *petiolaris*
- **Japanese Hydrangea-vine** *Schizophragma hydrangeoides*
- **American Wisteria** *Wisteria frutescens*

---

**NYS Prohibited and Regulated Invasive Species**

The following plant species are ‘Prohibited’ under the NYS regulations.

Prohibited plants must not be sold, imported, purchased, transported, introduced or propagated, or possessed with the intent to sell, import, purchase, transport, or introduce.

- *Acer pseudoplatanus*, Sycamore Maple
- *Achyranthes japonica*, Japanese Chaff Flower
- *Alliaria petiolata*, Garlic Mustard
- *Ampelopsis brevipedunculata*, Porcelain Berry
- *Anthriscus sylvestris*, Wild Chervil
- *Aralia elata*, Japanese Angelica Tree
- *Artemisia vulgaris*, Mugwort
- *Arthraxon hispidus*, Small Carpet Grass
- *Berberis thunbergii*, Japanese Barberry
- *Brachypodium sylvaticum*, Slender False Brome
- *Cabomba caroliniana*, Fanwort
- *Cardamine impatiens*, Narrowleaf Bittercress
- *Celastrus orbiculatus*, Oriental Bittersweet
- *Centarea stoebe* (C. *biebersteinii*, *C. diffusa*, *C. maculosa* misapplied, *C. x psammogena*), Spotted Knapweed
- *Cirsium arvense* (C. *setosum*, *C. incanum*, *Serratula arvensis*), Canada Thistle
- *Cinnaeuromitris louiseae* (C. *nigrum*, *Vincetoxicum nigrum*), Black Swallow-wort
- *Cynanchum rossicum* (C. *medium*, *Vincetoxicum medium*, *V. rossicum*), Pale Swallow-wort
- *Dioscorea polystachya* (D. *batatas*), Chinese Yam
- *Dipsacus laciniatus*, Cut-leaf Teasel
- *Egeria densa*, Brazilian Waterweed
- *Elaeagnus umbellata*, Autumn Olive
- *Euphorbia cyparissias*, Cypress Spurge
- *Euphorbia esula*, Leafy Spurge
- *Ficaria verna* (Ranunculus *ficaria*), Lesser Celandine
- *Frangula alnus* (Rhamnus *frangula*), Smooth Buckthorn
- *Glycera maxima*, Reed Manna Grass
- *Heracleum mantegazzianum*, Giant Hogweed
- *Humulus japonicus*, Japanese Hops
- *Hydrilla verticillata*, Hydrilla, Water Thyme
- *Hydrocharis morus-lutea*, European Frogbit
- *Imperata cylindrica* (I. *arundinacea*, *Lagurus cylindricus*), Cogon Grass
- *Iris pseudacorus*, Yellow Iris
- *Lepidium latifolium*, Broad-leaved Pepper-grass
- *Lespedeza cuneata*, Chinese Lespedeza
NYS Prohibited Invasive Species, cont.

Ligustrum obtusifolium, Border Privet
Lonicera japonica, Japanese Honeysuckle
Lonicera maackii, Amur Honeysuckle
Lonicera morrowii, Morrow's Honeysuckle
Lonicera tatarica, Tartarian Honeysuckle
Lonicera x bella, Fly Honeysuckle
Ludwigia hexapetala (L. grandiflora), Uruguyan Primrose Willow
Ludwigia peploides, Floating Primrose Willow
Lysimachia vulgaris, Garden Loosestrife
Lythrum salicaria, Purple Loosestrife
Microstegium vimineum, Japanese Stilt Grass
Murdannia keisak, Marsh Dewflower
Myriophyllum aquaticum, Parrot-feather
Myriophyllum heterophyllum, Broadleaf Water-milfoil
Myriophyllum heterophyllum x M. laxum, Broadleaf Water-milfoil Hybrid
Myriophyllum spicatum, Eurasian Water-milfoil
Nymphoides peltata, Yellow Floating Heart
Oplismenus hirtellus, Wavyleaf Basketgrass
Persicaria perfoliata (Polygonum perfoliatum), Mile-a-minute Weed
Phellodendron amurense, Amur Cork Tree
Phragmites australis, Common Reed Grass
Phyllostachys aurea, Golden Bamboo
Phyllostachys aureosulcata, Yellow Groove Bamboo
Potamogeton crispus, Curly Pondweed
Pueraria montana, Kudzu
Reynoutria japonica (Fallopia japonica, Polygonum cuspidatum), Japanese Knotweed
Reynoutria sachalinensis (Fallopia sachalinensis, Polygonum sachalinensis), Giant Knotweed
Reynoutria x bohemica (Fallopia x bohemica, Polygonum x bohemica), Bohemian Knotweed
Rhamnus cathartica, Common Buckthorn
Rosa multiflora, Multiflora Rose
Rubus phoenicosius, Wineberry
Salix atrocinerea, Gray Florist's Willow
Silphium perfoliatum, Cup-plant
Trapa natans, Water Chestnut
Vitex rotundifolia, Beach Vitex

There is one plant species that is currently on the Do-Not-Sell List in Suffolk County, but is not prohibited by the NYS regulation, Phalaris arundinacea, reed canary-grass. This species will continue to be prohibited in Suffolk County.

A few plant species will be ‘Regulated’, according to the NYS regulation. ‘Regulated’ indicates that the plant will be legal to possess, sell, buy, propagate and transport be sold, but must not be knowingly introduced into a free-living state (unconfined and outside the control of a person in areas such as public lands, natural areas, lands continually or intermittently connected to public or natural lands). In addition, there are specifications for labeling regulated species for sale as well as written communication to the purchasing customer detailing the species invasive risk and instructions for preventing the spread of the plant species. Note that currently all the below plants are currently on or are scheduled to soon be added the Do-Not-Sell List for Suffolk County.

The following plant species are ‘Regulated’ under the NYS regulation. Note that all the below plants are currently on the Do-Not-Sell list for Suffolk County.

Acer platanoides, Norway Maple
Clematis terniflora, Japanese Virgin’s Bower
Euonymus alatus, Burning Bush
Euonymus fortunei, Winter Creeper
Miscanthus sinensis, Chinese Silver Grass
Robinia pseudoacacia, Black Locust

Formerly Lynch’s…Same great company, same great staff...only a name change.

175 North Sea Rd., Southampton, N.Y.
(631) 283-5515
www.fowlersgardencenter.com
Plants that Attract Birds and Butterflies

**Birds**

**Trees**
- Aesculus pavia
- Amelanchier
- Celtis laevigata
- Celtis occidentalis
- Cornus florida
- Crataegus

**Shrubs/Vines**
- Aronia arbutifolia
- Aronia melanocarpa
- Bignonia capreolata
- Cotoneaster
- Ilex decidua
- Ilex verticillata
- Linderia benzoin
- Photinia villosa
- Pyracantha

**Perennials**
- Agastache
- Ajuga
- Alcea
- Aquilegia
- Asclepias
- Aster x frikartii
- Campanula
- Chelone
- Coreopsis
- Crocosmia
- Echinacea purpurea
- Echinops
- Helianthus
- Heuchera
- Hibiscus
- Hosta (Fragrant)
- Iris
- Lavandula
- Lavatera
- Lobelia cardinalis
- Lupinus
- Lychnis
- Monarda didyma
- Penstemon
- Phlox maculata
- Phlox paniculata
- Rudbeckia fulgida var. sullivantii
- Rudbeckia laciniata

**Butterflies**

**Perennials**
- Achillea millefolium
- Agastache hybrid
- Anapalis margaritacea
- Arabis
- Aruncus dioicus
- Asclepias tuberosa
- Aster x frikartii
- Aubrieta
- Baptisia
- Caryopteris
- Centranthus
- Chrysanthemum
- Heliopsis helianthoides
- Hemerocallis
- Iberis
- Lavandula
- Liatris spicata
- Ligularia
- Lilium
- Lobelia cardinalis
- Monarda didyma
- Oenothera
- Penstemon
- Phlox paniculata

---

**Cultivar Exemptions of Invasive Species for NYS**
These exemptions apply to the Suffolk County invasive plant species law, and the NYS invasive species regulation.

**Exempt Cultivars of Prohibited Species**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Cultivar Name</th>
<th>Trademark Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese Barberry</td>
<td>Berberis thunbergii</td>
<td>'Aurea'</td>
<td></td>
<td>Conditionally Exempt a</td>
</tr>
<tr>
<td>Japanese Barberry</td>
<td>Berberis thunbergii</td>
<td>'UCONN-BTCP4N'</td>
<td>Crimson Cutie</td>
<td>Conditionally Exempt</td>
</tr>
<tr>
<td>Japanese Barberry</td>
<td>Berberis thunbergii</td>
<td>'UCONN-BTB113'</td>
<td>Lemon Cutie</td>
<td>Conditionally Exempt</td>
</tr>
<tr>
<td>Japanese Barberry</td>
<td>Berberis thunbergii</td>
<td>'UCONN-BTB048'</td>
<td>Lemon Glow</td>
<td>Conditionally Exempt</td>
</tr>
</tbody>
</table>

**Exempt Cultivars of Regulated Species**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Cultivar Name</th>
<th>Trademark Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese Silvergrass</td>
<td>Miscanthus sinensis</td>
<td>'NCMS1'</td>
<td>My Fair Maiden</td>
<td>Conditionally Exempt</td>
</tr>
<tr>
<td>Chinese Silvergrass</td>
<td>Miscanthus sinensis</td>
<td>'Tift M77'</td>
<td>Scout</td>
<td>Conditionally Exempt</td>
</tr>
<tr>
<td>Wintercreeper</td>
<td>Euonymus fortunei</td>
<td>'Kewensis'</td>
<td></td>
<td>Conditionally Exempt</td>
</tr>
<tr>
<td>Wintercreeper</td>
<td>Euonymus fortunei</td>
<td>'Vanilla Frosting'</td>
<td></td>
<td>Conditionally Exempt</td>
</tr>
</tbody>
</table>

*a Conditionally Exempt – Cultivars exempt from Part 575 Prohibited and Regulated requirements, subject to periodic re-evaluation.*

You can request a cultivar to be reviewed to determine if it meets the requirements of exemption by submitting a Cultivar Assessment Request Form. If you would like a copy of the Cultivar Assessment Request Form, contact <isinfo@dec.ny.gov> or Nora Catlin (<nora.catlin@cornell.edu>, 631-727-785 x214).
Plants that Support Native Bees

Source: The Xerces Society for Invertebrate Conservation

Perennials

Agastache
Asclepias
Baptisia
Borago
Chelone
Echinacea
Eupatorium
Helenium
Helianthus
Geranium
Lavandula
Liatris
Lobelia
Lupinus
Mentha
Monarda
Nepeta
Ocimum
Perovskia
Pycnanthemum
Scilla
Solidago
Symphyotrichum
Tradescantia
Veronica
Veronicastrum

Hyssop
Milkweed
Wild indigo
Borage
Turtlehead
Purple coneflower
Boneset
Sneezeweed
Sunflower
Wild geranium
Lavender
Blazing star
Lobelia
Lupine
Wild mint
Beebalm
Catmint
Basil
Russian sage
Mountain mint
Squill
Goldenrod
Aster
Spiderwort
Ironweed
Culver’s root

Trees and Shrubs

Amelanchier
Ceanothus
Crataegus
Rhododendron
Rosa
Salix
Spirea
Tilia
Vaccinium

Serviceberry
New Jersey tea
Hawthorn
Azalea
Wild rose
Willow
Meadowsweet
Basswood
Blueberry

Plants That Are Deer Tolerant/Resistant

Very few plants are entirely deer resistant. If hungry or thirsty enough, deer will eat or nibble just about anything. The younger, more tender and succulent the plant is the more apt the deer are to try it. Most plants need to be established before they can be considered Deer Resistant.

Source: Dr. Mark Bridgen, Dept. of Horticulture, Cornell University (2-2010)

Annuals

Antirrhinum majus
Asparagus springeri
Begonia sempervires
Cleome hasslerana
Colocasia esculenta
Datura, Brugmansia spp.
Lobularia maritima
Nicotiana sylvestris
Pennisetum setaceum ‘Rubrum’
Senecio cineraria

Woody Trees and Shrubs

Buxus microphylla
Juniperus communis
Juniperus horizontalis
Juniperus procumbens
Juniperus scopulorum
Leucothoe fontanesiana
X Mahoberberis
Mahonia bealei
Morella caroliniensis
Osmanthus heterophyllus variegatus
Paeonia suffruticosa
Picea abies
Picea glauca
Picea pungens
Pieris japonica
Platanus occidentalis
Potentilla fruticosa
Skimmia japonica
Vitex agnus-castus

Grasses

Carex spp.
Hakonechloa macra
Panicum virgatum
Pennisetum alopecuroides

Native plant species best support native bee populations.
Herbaceous Perennials and Ground Covers

Aconitum napellus
Agastache foeniculum
Allium schoenoprasum
Allium tuberosum
Amsonia tabernaemontana
Artemesia ludoviciana
Artemesia schmidtiana
Asclepias tuberosa
Calamintha grandiflora
Cerastium tomentosum
Dicentra eximia
Dicentra spectabilis
Digitalis purpurea
Epimedium spp.
Fritillaria imperialis
Galanthus nivalis
Helleborus foetidus
Helleborus orientalis
Lamiastrum galeobdolon
Lamium maculatum
Lavandula angustifolia
Leucojum vernum
Ligularia dentata
Marrubium vulgare
Mazus reptans
Melissa officinalis
Mentha spp.
Narcissus
Nepeta mussinii
Nepeta x faassenii
Opuntia fulgida
Originum vulgar
Pachysandra procumbens
Pachysandra terminalis
Paonia hybrids
Perovskia atriplicifolia
Petasites japonicus
Podophyllum peltatum
Rheum rhapabarum
Ruta graveolens
Salvia officinalis
Santolina chamaecyparissus
Santolina virens
Stachys byzantina
Tanacetum parthenium
Teucrium chamaedrys
Thymus spp.
Verbascum olympicum

Plants Suitable for a Dry Location

Trees - Evergreen
Cedrus deodara
Cedrus libani
Cunninghamia lanceolata
Juniperus chinensis
Juniperus virginiana
Picea glauca
Picea omorika
Picea pungens var. glauca

Trees - Deciduous
Acer buergerianum
Celtis occidentalis
Chionanthus retusus
Cotinus obovatus
Fraxinus pennsylvanica
Gleditsia triacanthos var. inermis
Gymnocladus dioicus
Koelreuteria paniculata
Maackia amurensis
Ostrya virginiana
Oxydendrum arboreum

Shrubs - Evergreen
Aucuba japonica

Juniperus communis

Perennials
Acanthus spinosissimus
Achillea
Anaphalis sp.
Anemone pulsatilla
Anthemis tinctoria
Arabis caucasica
Armeria maritima
Artemisia
Asclepias tuberosa
Aubrieta deltoidea
Aurinia saxatilis
Campanula persicifolia
Catananche caerulea
Centanula montana
Cerastium tomentosum
Ceratostigma
Chamaecyparissus
Chrysanthemum pacificum
Coreopsis
Delosperma
Dictamnus albus
Echinacea purpurea
Echinops exaltatus
Eryngium sp.
Festuca ovina var. glauca
Gaillardia x grandiflora

Cephalotaxus harringtonia
Lavandula angustifolia
Nandina domestica
Osmanthus heterophyllus
Photinia x fraseri
Yucca filamentosa
Juniperus chinensis cultivars

Shrubs - Deciduous
Aronia arbutifolia
Physocarpus opulifolius
Caragana arborescens
Potentilla fruticosa
Cotinus coggygria
Prunus maritima
Cyrtisus scoparius
Rhus aromatica
Genista pilosa
Rosa nitida
Hydrangea serrata
Sambucus canadensis
Inflexed decumbens
Symphoricarpus spp.
Vaccinium angustifolium
Viburnum lantana

Ground Covers
Arctostaphylos uva-ursi
Juniperus chinensis
Juniperus communis
Juniperus conferta

Vines
Parthenocissus quinquefolia

Plants Suitable for a Dry Location

Trees - Evergreen
Pinus cembroides
Pinus rigida
Thuja occidentalis
Thuja orientalis
Ilex cornuta
Ilex latifolia
Ilex ‘Nellie R. Stevens’
Magnolia grandiflora

Trees - Deciduous
Parrotia persica
Quercus phellos
Sassafras albidum
Taxodium distichum
Tilia americana
Ulmus parvifolia
Viburnum prunifolium
Zelkova serrata

Shrubs - Evergreen
Juniperus communis

Plants Suitable for a Dry Location

Trees - Evergreen
Juniperus horizontalis
Juniperus procumbens
Juniperus squamata

Trees - Deciduous
Helenium
Helianthus
Hypericum
Iberis sempervirens
Lavandula angustifolia
Ilex decidua
Liatris sp.
Linum sp.
Lychnis chalcedonica
Oenothera
Panicum
Pennisetum
Penstemon digitalis
Perovskia atriplicifolia
Phlox carolina
Phlox maculata
Phlox subulata
Potentilla
Rudbeckia
Salvia
Santolina chamaecyparissus
Santolina virens
Scabiosa
Sedum
Solidago
Stachys byzantina
Plants Suitable for a Coastal Location

**Trees**
- Amelanchier canadensis
- Gleditsia triacanthos var. inermis
- Ilex opaca
- Juniperus virginiana
- Picea glauca
- Picea pungens

**Shrubs**
- Baccharis halimifolia
- Comptonia peregrina
- Cytisus scoparius
- Hibiscus moscheutos
- Hibiscus syriacus
- Hydrangea macrophylla
- Hypericum calycinum
- Hypericum frondosum
- Hypericum x mosseranum
- Ilex crenata
- Ilex glabra
- Juniperus chinensis

**Grasses**
- Ammophila breviligulata
- Chasmanthium latifolium
- Festuca glauca
- Panicum virgatum
- Pennisetum alopecuroides
- Sorghastrum nutans
- Scirpus cyperinus
- Spartina patens

**Ground Covers**
- Arctostaphylos uva-ursi
- Artemisia stelleriana
- Calluna vulgaris
- Epimedium
- Hudsonia tomentosa
- Jasminum nudiflorum
- Juniperus conferta
- Juniperus horizontalis
- Liriopae
- Santolina chamaecyparissus
- Yucca filamentosa

**Vines**
- Gelsemium sempervirens
- Hydrangea anomala subsp. petiolaris
- Lonicera x heckrotti
- Parthenocissus quinquefolia
- Schizophragma hydrangeoides
### Plants Suitable for a Coastal Location, cont.

#### Perennials
- Achillea
- Aquilegia
- Ajuga
- Alcea
- Alyssum
- Anemone pulsatilla
- Arabis
- Armeria
- Aster
- Baptisia
- Bergenia
- Brunnera
- Campanula persicifolia
- Cerastium
- Chasmanthium
- Chrysanthemum
- Cimicifuga
- Clematis
- Convallaria
- Coptis pumilla
- Delphinium
- Dianthus
- Dicentra
- Digitalis
- Echinops
- Erianthus
- Erigeron
- Eryngium
- Gaillardia
- Gypsophila
- Helieborus
- Hemerocallis hybrids
- Heuchera
- Hosta
- Iberis
- Iris germanica
- Iris pumila
- Kniphofia
- Lilium
- Limonium
- Monarda
- Nepeta
- Oenothera
- Paeonia
- Perennion
- Phalaris
- Physostegia
- Platycodon
- Polemonium
- Potentilla
- Primula
- Salvia
- Sedum
- Sempervivum
- Solidago
- Stachys
- Teucrium
- Thalictrum
- Thymus
- Tiarella
- Veronica

### Plants Suitable for a Shaded Location

#### Trees - Evergreen
- Ilex cornuta
- Ilex opaca
- Magnolia grandiflora
- Taxus baccata
- Taxus cuspidata
- Taxus x media
- Tsuga diversifolia
- Tsuga heterophylla

#### Trees - Deciduous
- Acer pensylvanicum
- Acer saccharum
- Amelanchier canadensis
- Aesculus pavia
- Carpinus caroliniana
- Chionanthus virginicus
- Cornus alternifolia
- Cornus florida
- Fagus sylvatica
- Fagus grandifolia
- Franklinia alatamaha
- Magnolia virginiana
- Ostrya virginiana
- Oxydendrum arboreum
- Stewartia

#### Shrubs - Evergreen
- Aucuba japonica
- Buxus sempervirens
- Cephalotaxus harringtonia
- Chamaecyparis thyoides
- Daphne x burkwoodii
- Daphne cneorum
- Euonymus japonicus
- Euonymus kiautschovicus
- Ilex crenata
- Ilex glabra
- Kalmia angustifolia
- Kalmia latifolia
- Leucothoe axillaris
- Leucothoe fontanesiana
- Mahonia aquifolium
- Mahonia bealei
- Nandina domestica
- Osmanthus heterophyllus
- Photinia x fraseri
- Pieris floribunda
- Pieris japonica
- Prunus laurocerasus
- Rhododendron hybrids
- Rhododendron maximum
- Sarcococca hookeriana
- Skimmia japonica
- Taxus baccata
- Taxus x media

#### Shrubs - Deciduous
- Abelia x grandiflora
- Aesculus parviflora
- Calycanthus floridus
- Clethra acuminata
- Clethra alnifolia
- Cornus
- Daphne caucasica
- Hamamelis virginiana
- Hydrangea arborescens
- Hydrangea quercifolia
- Kerria japonica
- Rhus aromatica
- Symphoricarpus albus
- Viburnum acerifolium
- Viburnum dentatum
- Viburnum x jackii
- Viburnum dentatum
- Viburnum lantana
- Viburnum x media
- Viburnum prunifolium
Plants Suitable for a Shaded Location, cont.

Ground Covers
Cornus canadensis
Epimedium
Gaultheria procumbens
Hedera colchica

Mahonia repens
Pachysandra procumbens
Pachysandra terminalis

Vines
Hedera colchica
Hydrangea anomala subsp. petiolaris
Parthenocissus quiquefolia
Schizophragma hydrangeoides

Perennials
Aconitum napellus
Ajuga
Anemone nemorosa
Aquilegia, some
Arisaema
Aruncus dioicus
Asarum
Aster divaricatus
Astilbe
Bergenia
Brannera macrophylla
Campanula latifolia
Cardiocrinum giganteum
Chelone
Chrysogonum
Cimicifuga
Convallaria majalis
Dicentra
Erythronium
Eupatorium rugosum
Euphorbia robbiae
Ferns
Galax urceolata (aphylla)
Galium
Gentiana asclepiadea
Geranium
Helleborus
Hesperis matronalis
Heuchera
Hosta
Iris cristata
Iris foetidissima
Lamium
Ligularia
Liriope
Lobelia
Mertensia
Ophiopogon
Paeonia emodii
Phlox divaricata
Phlox stolonifera
Polygonatum
Primula sp.
Pulmonaria
Saxifraga fortunei
Smilacina racemosa
Symphytum grandiflorum
Teucrium
Thalictrum
Tiarella
Tradescantia
Tricyrtis
Trollius
Veratrum
Viola odorata

Recommended Street Trees for Long Island

For more information on urban planting options, explore the Woody Plants Database: http://woodyplants.cals.cornell.edu/home

Small Trees
Suitable within 15 feet of 35-foot high electric wires, or in restricted tree lawn areas (less than 4 feet wide).
Tree Heights approximately 20 ft. – 40 ft.

Acer buergerianum
Acer miyabei
Acer tataricum
Acer truncatum
Amelanchier spp.
   (resistant cultivars only i.e. ‘Cumulus’, ‘Autumn Brilliance’, ‘Robin Hill’)
Carpinus caroliniana
Cercis canadensis
Cornus kousa
Cornus mas
Cotinus obovatus
Crataegus crus-galli var. inermis
Crataegus phaenopyrum
Crataegus viridis ‘Winter King’
Gleditsia triacanthos var. inermis ‘Imperial’
Koelreuteria paniculata
Maackia amurensis
Malus spp. (resistant cultivars only)
Parrotia persica
Prunus spp. (less than 35’ tall i.e. ‘Snow Goose’) (P. virginiana is not recommended due to Black Knot susceptibility)
Sorbus hybrid
Syringa reticulata
Tilia cordata ‘Summer Sprite’
Zelkova serrata ‘Wireless’, ‘City Sprite’

Large Trees > 35 feet
Should be set back at least 25 ft. from overhead wires and in tree lawns at least 8 ft wide.

Acer x freemanii i.e. ‘Armstrong’, ‘Autumn Blaze’
Acer rubrum
Acer saccharum
Aesculus x carnea
Betula nigra ‘Heritage’, ‘Dura-Heat’
Betula populifolia ‘Whitespire Sr.’
Carpinus betulus
Catalpa speciosa
Celtis laevigata
Celtis occidentalis
Recommended Street Trees for Long Island, cont.

Cladrastis kentukea
Corylus colurna
Eucommia ulmoides
Ginkgo biloba
Gleditsia triacanthos var. inermis
   (resistant cultivars only i.e. ‘Shademaster’ ‘Skyline’, ‘Halka’)
Gymnocladus dioicus
Liquidambar styraciflua
Liriodendron tulipifera
Maclura pomifera var. inermis (male)
Metasequoia glyptostroboides
Nyssa sylvatica
Ostrya virginiana
Platanus x acerifolia
Prunus sargentii
Quercus acutissima
Quercus bicolor
Quercus coccinea
Quercus imbricaria
Quercus lyrata
Quercus macrocarpa
Quercus muehlenbergii
Quercus palustris
Quercus phellos
Quercus robur
Quercus rubra
Quercus shumardii
Sorbus alnifolia
Styphnolobium japonicum
Taxodium distichum
Tilia americana
Tilia cordata
Tilia tomentosa
Tilia x euchlora
Ulmus parvifolia
Ulmus cultivars
   (resistant cultivars only)
Zelkova serrata

Thank You to All Our Sponsors

We appreciate the support of our sponsors in helping to make the 2019 Long Island Horticulture Conference successful. Please support them whenever possible.

Atlantic Nurseries Inc .................................................. 80
CCE Suffolk Horticulture Diagnostic Lab ................................ 6
Charlie & Sons Landscapes ............................................ 24
DeLallo sod Farms ......................................................... 138
DeLea sod Farm ............................................................. 120
Farm Family Casualty Long Island Agency ............................ 66
Fowler’s Garden Center ................................................... 51
Glover Perennials .......................................................... 52
Half Hollow Nursery ......................................................... 58
Island Bio Greens ............................................................ 7
Long Island Nursery & Landscape Association ........................ 134
North Fork Boutique Gardens Inc. ...................................... 16
North Fork Nursery .......................................................... 67
Perennial Charm Nursery LLC ......................................... 140
Pinewood Perennial Gardens LLC ..................................... 115
Professional Tree Surgeons Supply Inc. ............................... 43
Warner Nursery ............................................................... 25

Thank you to all our speakers and the people from the Cooperative Extension network for their help and support:

Debbie Aller
Marie Boulier
Mark Bridgen
Marie Camenares
Nora Catlin
Margery Daughtrey
Andrew DellaVilla
Vinnie Drzewucki
Melissa Elkins
Dan Gilrein
Shannon Veraldi
Sarah Osborn
Alice Raimondo
Andy Senesac
Kyle Smith
Sandra Vultaggio
Tamson Yeh
Dominick Zeppetella
Roxanne Zimmer
Listing by Company Name

Atlantic Nurseries Inc
691 Deer Park Ave, Dix Hills, NY 11746
Tel: 631-586-6242
www.atlanticnurseries.com
info@atlanticnurseries.com
Contact: Katherine Biene Schaefer

Charlie & Sons Landscapes
26 Montauk Highway, PO Box 10, Amagansett, NY 11930
631-267-3182
www.charliesons.com
apcharlieandsons@gmail.com
Contact: C. Whitmore

DeLalio Sod Farms
652 Deer Park Avenue, Dix Hills, NY 11746
631-242-3700
www.delaliosod.com
delaliosod@optonline.net
Contact: Leonard M. DeLalio

DeLea Sod Farm
444 Elwood Rd, E Northport, NY 11731
631-368-8022
www.deleasod.com
sgeiser@deleasod.com
Contact: Scott Geiser

Farm Family Casualty Long Island Agency
859 Connetquot Ave, Ste 11, Islip Terrace, NY 11752
631-277-7770
Contact: Vincent Daley

Fowler’s Garden Center
175 North Sea Road, Southampton NY 11968
631-283-5515
www.fowlersgardencenter.com
info@fowlersgardencenter.com
Contact: Jamie Wilson

Glover Perennials
725 Sterling Lane, PO Box 759, Cutchogue, NY 11935
631-765-3546
www.gloverperennials.com
info@gloverperennials.com
Contact: Jim Glover

Half Hollow Nursery
624 Deer Park Ave, Dix Hills, NY 11746
631-667-4400
www.halfhollownursery.com
hhn11@optonline.net
Contact: Richie DelPrete

Island Bio Greens
1448-1 Riverhead-Speonk Road, Speonk, NY 11965
631-749-0621
www.islandbiogreens.com
kenkraus@hotmail.com
Contact: Ken Kraus

Long Island Nursery & Landscape Association
136 Everette Road, Albany, NY 12205
516-249-0545
www.LINLA.org
info@linla.org
Contact: Carol Isles

North Fork Nursery
448 Herricks Lane, PO Box 645, Jamesport, NY 11947
631-722-3850
northforkn@optonline.net
Contact: Jackie Kolodziejski

North Fork Boutique Gardens Inc.
2450 Elijah’s Lane, Mattituck, NY 11952
631-734-6832
drogers@nfbgi.com
www.nfbgi.com
Contact: Deb Rodgers
Perennial Charm Nursery LLC
278 Narrow Lane East
PO Box 61, Sagaponack, NY 11962
631-537-0775
percharm@optonline.net
Contacts: Ken Tillotson

Pinewood Perennial Gardens LLC
560 Sterling Lane, PO Box 915, Cutchogue, NY 11935
631-734-6911
scott@pinewoodperennials.com
www.pinewoodperennials.com
Contact: Scott Clark

Professional Tree Surgeons Supply Inc.
580 Hoffman Ave., Lindenhurst, NY 11757
631-957-0301
heatherraso4@gmail.com
Contact: Heather Raso

Warner Nursery
2674 Sound Ave, Baiting Hollow, NY 11933
631-727-1336
warnernursery@optonline.net
Contact: Jim Warner

Listing by Product / Service

Biological Pest Controls
Atlantic Nurseries Inc
Island Bio Greens
Professional Tree Surgeons

Biostimulants
Atlantic Nurseries Inc
Half Hollow Nursery
Island Bio Greens
Professional Tree Surgeons

Burlap, Sisal
Atlantic Nurseries Inc
Fowler’s Garden Center
Half Hollow Nursery

Climbing Cables/Rigging
Professional Tree Surgeons

Compost
Atlantic Nurseries Inc
DeLalio Sod Farms LLC
DeLea Sod Farms
Fowler’s Garden Center
Island Bio Greens

Containers/Pottery/Teak
Atlantic Nurseries Inc
Fowler’s Garden Center

Deer Fencing
Atlantic Nurseries Inc
Charlie & Sons Landscapes
Fowler’s Garden Center
Island Bio Green

Deer Repellents
Atlantic Nurseries Inc
Fowler’s Garden Center

Equipment, Sales
Professional Tree Surgeons

Erosion Control
Fowler’s Garden Center
Fall Interest (pumpkins, gourds, etc.)
  Atlantic Nurseries Inc
  Fowler's Garden Center

Fertilizer, Bulk Application
  DeLalio Sod Farms LLC

Fertilizer, Controlled-release
  Atlantic Nurseries Inc
  DeLalio Sod Farms LLC
  DeLea Sod Farms
  Island Bio Green

Fertilizer, Custom Blend
  Island Bio Green
  Professional Tree Surgeons

Fertilizer, Inorganic
  Atlantic Nurseries Inc
  DeLalio Sod Farms LLC
  Island Bio Greens
  Professional Tree Surgeons

Fertilizer, Organic
  Atlantic Nurseries Inc
  DeLalio Sod Farms LLC
  Fowler's Garden Center
  Half Hollow Nursery
  Island Bio Greens
  Professional Tree Surgeons

Fieldgrown Specimen Dwarf Conifers
  Fowler's Garden Center
  Half Hollow Nursery

Gold Medal Plants
  Atlantic Nurseries Inc
  Glover Perennials
  North Fork Boutique Gardens Inc. Inc.
  Pinewood Perennial Gardens LLC

Hardgood Supplies
  Atlantic Nurseries Inc
  Fowler's Garden Center
  Half Hollow Nursery

Horticulture Books
  Atlantic Nurseries Inc

Hydromulch Products
  DeLalio Sod Farms LLC
  DeLea Sod Farms

Insurance
  Farm Family Casualty Insurance

Irrigation Supplies, Commercial
  Romanski Farms Inc

Landscape Installation
  Atlantic Nurseries Inc
  Charlie & Sons Landscapes

Landscape Supplies
  Atlantic Nurseries Inc
  DeLea Sod Farms
  Fowler's Garden Center
  Half Hollow Nursery
  Professional Tree Surgeons

Long Island Ecotypes
  Atlantic Nurseries Inc
  Glover Perennials
  North Fork Boutique Gardens Inc.

Mulch
  Atlantic Nurseries Inc
  DeLalio Sod Farms LLC
  DeLea Sod Farms
  Fowler's Garden Center
  Half Hollow Nursery

Nursery Supplies
  DeLalio Sod Farms LLC
  Half Hollow Nursery
  Professional Tree Surgeons

Personal Safety
  Professional Tree Surgeons

Pesticides: Botanicals
  Atlantic Nurseries Inc
  Fowler's Garden Center
  Island Bio Greens
  Professional Tree Surgeons
Pesticides: Fungicides
  DeLalio Sod Farms LLC
  DeLea Sod Farms
  Fowler’s Garden Center
  Island Bio Greens
  Professional Tree Surgeons

Pesticides: Herbicides
  DeLalio Sod Farms LLC
  Fowler’s Garden Center

Pesticides: Insecticides
  Atlantic Nurseries Inc
  DeLalio Sod Farms LLC
  Fowler’s Garden Center
  Professional Tree Surgeons

Pesticides: Rodenticides
  Atlantic Nurseries Inc
  Fowler’s Garden Center

Plant Health Care
  Fowler’s Garden Center

Plant Material
  Atlantic Nurseries Inc
  Charlie & Sons Landscapes
  Fowler’s Garden Center
  Half Hollow Nursery
  North Fork Boutique Gardens Inc.
  Perennial Charm Nursery
  Pinewood Perennial Gardens
  Shade Trees Nurseries

Plants: Aquatic Plants
  Fowler’s Garden Center
  Perennial Charm Nursery

Plants: Bedding Plants/Annuals
  Atlantic Nurseries Inc
  Fowler’s Garden Center
  Half Hollow Nursery
  Perennial Charm Nursery
  Shade Trees Nursery Inc

Plants: Bulbs
  Atlantic Nurseries Inc

Plants: Dwarf Conifers
  Atlantic Nurseries Inc
  Fowler’s Garden Center
  Half Hollow Nursery
  North Fork Boutique Gardens Inc.

Plants: Edibles
  Atlantic Nurseries Inc
  Fowler’s Garden Center
  Glover Perennials
  North Fork Nursery
  North Fork Boutique Gardens Inc.
  Perennial Charm Nursery
  Pinewood Perennial Gardens LLC

Plants: Grasses
  Atlantic Nurseries Inc
  Fowler’s Garden Center
  Glover Perennials
  Half Hollow Nursery
  North Fork Boutique Gardens Inc.
  Perennial Charm Nursery
  Pinewood Perennial Gardens LLC

Plants: Groundcovers
  Atlantic Nurseries Inc
  Fowler’s Garden Center
  Glover Perennials
  Half Hollow Nursery
  North Fork Boutique Gardens Inc.
  Perennial Charm Nursery
  Pinewood Perennial Gardens LLC

Plants: Hanging Baskets
  Atlantic Nurseries Inc
  Fowler’s Garden Center

Plants: Hardy Mums
  Atlantic Nurseries Inc
  Fowler’s Garden Center
  Half Hollow Nursery
  Perennial Charm Nursery

Plants: Herbaceous Perennials
  Atlantic Nurseries Inc
  Fowler’s Garden Center
  Glover Perennials
Half Hollow Nursery
North Fork Boutique Gardens Inc.
Perennial Charm Nursery
Pinewood Perennial Gardens LLC

Plants: Herbs
Atlantic Nurseries Inc
Fowler’s Garden Center
North Fork Boutique Gardens Inc.
Perennial Charm Nursery

Plants: Native
Atlantic Nurseries Inc
Fowler’s Garden Center
Glover Perennials
North Fork Boutique Gardens Inc.
Perennial Charm Nursery
Pinewood Perennial Gardens LLC

Plants: Poinsettias
Fowler’s Garden Center

Plants: Specialty Annuals
Fowler’s Garden Center

Plants: Tropical
Atlantic Nurseries Inc
Fowler’s Garden Center

Plants: Shrubs - Container
Atlantic Nurseries Inc
Fowler’s Garden Center
Glover Perennials
Half Hollow Nursery
North Fork Boutiques Gardens Inc.
North Fork Nursery
Perennial Charm Nursery
Pinewood Perennial Gardens LLC

Plants: Shrubs - Field
Fowler’s Garden Center
Half Hollow Nursery
North Fork Nursery
Perennial Charm Nursery
Pinewood Perennial Gardens LLC

Plants: Specialty Annuals
Atlantic Nurseries Inc
Fowler’s Garden Center
Perennial Charm Nursery

Plants: Specimen Conifers
Atlantic Nurseries Inc
Half Hollow Nursery
North Fork Nursery
Warner Nursery

Plants: Succulents
Atlantic Nurseries Inc
Fowler’s Garden Center
Glover Perennials

Plants: Trees - Container
Atlantic Nurseries Inc
Fowler’s Garden Center
Half Hollow Nursery
North Fork Nursery
Perennial Charm Nursery
Warner Nursery

Plants: Trees - Field
Half Hollow Nursery
North Fork Nursery
Warner Nursery

Plants: Vines
Atlantic Nurseries Inc
Fowler’s Garden Center
Glover Perennials
Half Hollow Nursery
North Fork Boutique Gardens Inc.
Perennial Charm Nursery
Pinewood Perennial Gardens LLC

Power Equipment Sales & Service
Professional Tree Surgeons

Posting Signs
Professional Tree Surgeons

Pruning Supplies
Atlantic Nurseries Inc
Fowler’s Garden Center
Half Hollow Nursery  
Professional Tree Surgeons

**Retail Supplies**  
Fowler’s Garden Center

**Sand & Gravel**  
DeLea Sod Farms

**Seed**  
DeLalio Sod Farms LLC  
DeLea Sod Farms  
Fowler’s Garden Center

**Seed: Custom blended**  
DeLalio Sod Farms LLC  
DeLea Sod Farms  
Island Bio Greens

**Seed: Grass**  
DeLalio Sod Farms LLC  
DeLea Sod Farms  
Fowler’s Garden Center  
Half Hollow Nursery  
Island Bio Greens

**Sod**  
DeLalio Sod Farms LLC  
DeLea Sod Farm  
Fowler’s Garden Center

**Soil Conditioners**  
Atlantic Nurseries Inc  
Half Hollow Nursery  
Island Bio Greens

**Soil: Custom Blends**  
DeLea Sod Farms

**Soil: Potting & Mixes**  
Atlantic Nurseries Inc  
Fowler’s Garden Center

**Soil: Top**  
Atlantic Nurseries Inc  
DeLalio Sod Farms LLC  
DeLea Sod Farms  
Fowler’s Garden Center  
Half Hollow Nursery

**Statuary & Fountains**  
Atlantic Nurseries Inc  
Fowler’s Garden Center

**Stone**  
Fowler’s Garden Center

**Trade Tools**  
Atlantic Nurseries Inc  
DeLalio Sod Farms LLC  
Fowler’s Garden Center  
Professional Tree Surgeons

**Trellises**  
Atlantic Nurseries Inc  
Fowler’s Garden Center

**Truck Covers**  
Half Hollow Nursery

**Turf: Golf**  
DeLea Sod Farms

**Turf: Sports**  
DeLea Sod Farms

**Water Garden, Design**  
Charlie & Sons Landscapes  
Fowler’s Garden Center  
Glover Perennials  
Fowler’s Garden Center  
Perennial Charm Nursery

**Water Garden, Products & Supplies**  
Fowler’s Garden Center

**Watering Supplies**  
Atlantic Nurseries Inc  
Fowler’s Garden Center

**Wholesale Grower, Field & Container**  
Atlantic Nurseries Inc  
Fowler’s Garden Center  
Glover Perennials  
Half Hollow Nursery  
North Fork Boutique Gardens Inc.  
Perennial Charm Nursery  
Shade Trees Nurseries, Inc.
Trees to Be Cautious of for Fall Transplanting

Over the years, nursery growers, arborists, and landscapers have found that some species are more prone to difficulties when transplanted in the fall balled-and-burlapped rather than in the spring. You may want to consider transplanting the following species only in the spring, or use extra precautions if you do transplant in the fall. (Source: Himelick, E.B. 1984. Tree and Shrub Transplanting Manual. Urbana, IL: International Society of Arboriculture.)

Abies spp.
Betula spp.
Carpinus caroliniana
Carya spp.
Chionanthus virginicus
Cladrastis kentukea
Cornus florida
Diospyros virginiana
Fagus spp.
Ginkgo biloba
Ilex opaca
Juglans spp.
Koelreuteria paniculata
Laburnum spp.
Larix spp.
Liquidambar styraciflua
Liriodendron tulipifera
Magnolia spp.
Nyssa sylvatica

Ostrya virginiana
Oxydendrum arboreum
Populus spp.
Prunus spp.
Quercus alba
Quercus bicolor
Quercus cocinea
Quercus imbricaria
Quercus macrocarpa
Quercus muehlenbergii
Quercus phellos
Quercus prinus
Quercus robur
Quercus rubra
Quercus shumardi
Quercus velutina
Salix spp.
Sassafras albidum
Taxodium spp.

Plants Suitable for a Wet Location

Trees - Evergreen
Chamaecyparis thyoides
Thuja occidentalis
Magnolia grandiflora

Trees - Deciduous
Acer x freemanii
Acer rubrum
Amelanchier spp.
Betula nigra
Celtis occidentalis
Fraxinus pennsylvanica
Hamamelis macrophylla
Hamamelis virginiana
Ilex decidua
Liquidambar styraciflua
Magnolia virginiana

Metasequoia glyptostroboides
Nyssa sylvatica
Quercus bicolor
Quercus palustris
Quercus phellos
Salix alba
Salix babylonica
Taxodium distichum
Viburnum x jackii

Shrubs - Evergreen
Ilex glabra
Chamaecyparis thyoides
Thuja occidentalis

Shrubs - Deciduous
Aronia arbutifolia
Aronia melanocarpa
Clethra alnifolia
Cornus alba
Cornus sericea
Hamamelis vernalis
Hamamelis virginiana
Ilex decidua
Ilex verticillata
Itea japonica
Itea virginica
Lindera benzoin

Ground Covers
Vaccinium macrocarpon

Perennials
Aconitum
Acorus
Ajuga
Arunus dioicus
Asclepias incarnata
Asperula odorata
Aster novae-angliae
Astilbe
Astrantia
Bergenia
Brunnera
Caltha palustris
Chelone
Cimicifuga racemosa
Convallaria
Dodecatheon
Equisetum
Erianthus
Eupatorium
Ferns
Filipendula, most
Galium
Geranium
Helenium autumnale
Hemerocallis hybrids
Hibiscus moscheutos & hybrids

Rhododendron canadense
Rhododendron nudiflorum
Rhododendron vaseyi
Rhododendron viscosum
Salix
Sambucus nigra
Vaccinium corymbosum
Viburnum acerifolium
Viburnum dentatum
Viburnum lentago

Hosta
Houttuynia
Iris ensata
Iris sibirica
Iris tectorum
Juncus
Ligularia
Liriope
Lobelia
Mentha
Mertensia virginica
Monarda
Oenothera
Physostegia virginiana
Primula
Primula japonica
Pulmonaria
Rodgersia
Thalictrum
Tiarella
Tradescantia
Tricyrtis
Trollius
Typha
Veratrum
Veronicastrum
**Long Island Native Plants**

**Ferns**
- *Athyrium filix-femina*  
  Lady Fern  
- *Dennstaedtia punctilobula*  
  Hay-scented Fern  
- *Onoclea sensibilis*  
  Sensitive Fern  
- *Osmunda cinnamomea*  
  Royal Fern  
- *Osmunda regalis*  
  Royal Fern  
- *Polystichum acrostichoides*  
  Christmas Fern  
- *Thelypteris noveboracensis*  
  New York Fern

**Grasses, Sedges, Rushes**
- *Ammophila breviligulata*  
  Beach Grass  
- *Andropogon gerardii*  
  Big Bluestem  
- *Andropogon glomeratus*  
  Bushy Bluestem  
- *Andropogon virginicus*  
  Broomsedge  
- *Carex crinite*  
  Fringed Sedge  
- *Carex laxiculmis*  
  Spreading Sedge  
- *Carex pensylvanica*  
  Pennsylvania Sedge  
- *Deschampsia flexuosa*  
  Wavy-hair Grass  
- *Elymus virginicus*  
  Eastern Wild Rye  
- *Eragrostis spectabilis*  
  Purple Lovegrass  
- *Juncus canadensis*  
  Canadian Rush  
- *Juncus effusus*  
  Soft Rush  
- *Juncus gerardii*  
  Saltmarsh Rush/Black Grass  
- *Juncus greenei*  
  Greene’s Rush  
- *Juncus tenuis*  
  Path Rush  
- *Panicum virgatum*  
  Switchgrass  
- *Schizachyrium scoparium*  
  Little Bluestem  
- *Schoenoplectus pungens*  
  Three-square Bulrush  
- *Schoenoplectus tabernaemontani*  
  Softstem Bulrush  
- *Sisyrinchium angustifolium*  
  Blue-eyed Grass  
- *Scirpus cyperinus*  
  Wool Grass  
- *Sorghastrum nutans*  
  Indian Grass  
- *Spartina patens*  
  Salt Meadow Cordgrass  
- *Spartina pectinata*  
  Freshwater Cordgrass

**Perennials (includes Aquatics)**
- *Achillea millefolium*  
  Common Yarrow  
- *Ageratina altissima*  
  White Snakeroot  
- *Arisaema triphyllum*  
  Jack-in-the-Pulpit  
- *Asclepias incarnata*  
  Swamp Milkweed  
- *Asclepias syriaca*  
  Common Milkweed  
- *Asclepias tuberosa*  
  Butterfly Weed  
- *Baptisia tinctoria*  
  Wild Yellow Indigo  
- *Caltha palustris*  
  Marsh Marigold  
- *Chelone glabra*  
  Turtle Head  
- *Chrysopsis mariana*  
  Maryland Golden Aster  
- *Cirsium discolor*  
  Field Thistle  
- *Eupatorium hyssopifolium*  
  Hyssop-leaved Thoroughwort  
- *Eupatorium perfoliatum*  
  Boneset  
- *Eupatorium pilosum*  
  Rough Boneset  
- *Eurybia divaricata*  
  White Wood Aster  
- *Euthamia caroliniana*  
  Coastal Grass-leaved Goldenrod
Long Island Native Plants, cont.

**Shrubs**
- Arctostaphylos uva-ursi
- Aronia arbutifolia
- Aronia melanocarpa
- Baccharis halimifolia
- Cephalanthus occidentalis
- Clethra alnifo lia
- Comptonia peregrina
- Cornus amomum
- Decodon verticillatus
- Gaylussacia baccata
- Hudsonia tomentosa
- Ilex glabra
- Ilex verticillata
- Iva frutescens
- Juniperus communis

**Trees, Tall Shrubs**
- Acer rubrum
- Alnus incana
- Amelanchier canadensis
- Amelanchier laevis
- Betula lenta
- Betula populifolia
- Carpinus caroliniana
- Carya glabra
- Carya tomentosa
- Celtis occidentalis
- Chamaecyparis thyoides
- Cornus alternifolia
- Cornus florida
- Crataegus crus-gali
- Crataegus mollis
- Crataegus punctata
- Fagus grandifolia
- Fraxinus americana
- Fraxinus pensylvanica
- Hamamelis virginiana
- Ilex opaca
- Juglans cinerea
- Juglans nigra
- Juniperus virginiana
- Liriodendron tulipifera
- Nyssa sylvatica
- Pinus rigida
- Pinus strobus
- Populus tremuloides

**Other Shrubs**
- Bearberry
- Red Chokeberry
- Black Chokeberry
- Groundsel Bush
- Buttonbush
- Summersweet
- Sweet Fern
- Silky/Swamp Dogwood
- Water Willow
- Black Huckleberry
- Sand Heather
- Inkberry
- Winterberry
- Marsh Elder
- Common Juniper

**Other Trees**
- Mountain Laurel
- Swamp Sweetbells
- Maleberry
- Bayberry
- Prickly Pear Cactus
- Beach Plum
- Swamp Azalea
- Winged Sumac
- Smooth Sumac
- Pasture Rose
- Swamp Rose
- Virginia Rose
- Pussy Willow
- American Elderberry
- White Meadowsweet
- Rosy Meadowsweet
- Lowbush Blueberry
- Highbush Blueberry
- Cranberry
- Maple-leaved Viburnum
- Smooth Arrowwood
- Southern Arrowwood

**Other Shrubs**
- Hamamelis virginiana
- Ilex opaca
- Juglans cinerea
- Butternut
- Black Walnut
- Butternut
- Black Walnut
- Butternut
- Black Walnut
- Butternut
- Black Walnut
- Butternut
- Black Walnut
- Butternut
- Black Walnut
Plants for Various Conditions

Following are lists of plants that might be considered for use in various situations, both environmental and ornamental. These lists are by no means complete but meant to provide ideas for plant use when needed. In some cases, the plants may prefer the conditions while in others they may be tolerant of the conditions they are listed under. In general, plants are able to survive difficult conditions better after they are established. Other species and/or cultivars might exist in the genus that would also be suitable for those conditions. Where only the genus is listed, all species within the genus might not be suitable.

The following can be used as a guide for light conditions.

<table>
<thead>
<tr>
<th>Light Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunny</td>
<td>4-6 hours of direct sun/day during the growing season</td>
</tr>
<tr>
<td>Partial Shade</td>
<td>&lt; 4 hours of direct sun</td>
</tr>
<tr>
<td>Shade</td>
<td>No direct sun</td>
</tr>
</tbody>
</table>

Grey-Leafed Perennials

- Achillea ‘Moonshine’
- Anaphalis sp.
- Artemisia, esp. A. ludoviciana & A. l. ‘Silver Queen’, A. schmidtiana ‘Nana’
- Cerastium sp.
- Crambe maritima
- Dianthus sp. & cv.
- Eryngium maritimum
- Festuca ovina glauca
- Helictotrichon sempervirens
- Lavandula angustifolia
- Lychnis coronaria
- Potentilla, some
- Ruta graveolens & cvs.
- Salvia argentea
- Salvia officinalis
- Scabiosa graminifolia
- Sedum, some
- Stachys byzantina
- Thalictrum speciosissimum
- Verbascum bobyciferum (biennial)
- Veronica incana
- Veronica ‘Minuet’
### Long Blooming Perennials

- Achillea ‘Coronation Gold’
- Achillea filipendulina ‘Gold Plate’
- Armeria maritima
- Anaphalis triplinervis
- Astilbe chinensis pumila
- Brunnera macrophylla
- Campanula carpatica
- Chrysanthemum parthenium
- Chrysanthemum ‘Snow Lady’
- Chrysogonum virginianum
- Cimicifuga racemosa
- Coreopsis ‘Flying Saucers’
- Coreopsis ‘Goldfink’
- Coreopsis x grandiflora
- Dicentra ‘Bountiful’
- Dicentra ‘Luxuriant’
- Dicentra eximia
- Echinacea purpurea cvs.
- Erigeran karvinskianus
- Gaura ‘Whirling Butterflies’
- Gaura ‘Siskyou Pink’
- Geranium sanguineum prostratum (lancastriense)
- Heliopsis cvs.
- Monarda didyma cvs.
- Nepeta x faassenii, if cut back after first bloom
- Oenothera speciosa
- Phlox paniculata cvs.
- Platycodon grandiflorus
- Polygonum amplexicaule ‘Atrosanguineum’
- Rudbeckia fulgida var. sullivantii ‘Goldsturm’
- Salvia ‘Blue Hill’
- Salvia ‘Maraschino’
- Salvia nemorosa ‘Superba’
- Salvia plumosa
- Salvia ‘Snow Hill’
- Scabiosa ‘Butterfly Blue’
- Scabiosa ‘Pink Mist’
- Sedum ‘Autumn Joy’
- Tradescantia x andersoniana (virgiana of gardens)
- Verbascum ‘Southern Charm’
- Verbena ‘Homestead Purple’
- Verbena ‘Sissinghurst’
- Verbena ‘Taylortown Red’

### Perennials - Flowering Month By Month

#### March
- Arabis caucasica
- Helleborus niger
- Helleborus orientalis
- Phlox subulata

#### April
- Ajuga reptans
- Anemone pulsatilla
- Arabis caucasica
- Aubrieta deltoides
- Aurinia saxatilis
- Bergenia cordifolia
- Brunnera macrophylla
- Erysimum asperum
- Helleborus niger
- Helleborus orientalis
- Iberis sempervirens
- Mertensia virginica
- Phlox subulata
- Primula x polyantha
- Pulmonaria saccharata
- Viola odorata

#### May
- Ajuga reptans
- Anemone pulsatilla
- Aquilegia hybrida
- Arabis caucasica
- Armeria maritima
- Aubrieta deltoides
- Aurinia saxatilis
- Bergenia cordifolia
- Brunnera macrophylla
- Centaurea montana
- Cerastium tomentosum
- Convallaria majalis
- Dianthus caesius ‘Tiny Rubies’
- Dianthus pulsilum
- Dicentra eximia
- Dicentra spectabilis
- Dictamnus albus
- Doronicum cordatum
- Epimedium x rubrum
- Erysimum asperum
- Galium odoratum
- Geum hybrids
- Hemerocallis spp.
- Iberis sempervirens
- Iris germinica hybrids
- May to June
Perennials, Flowering by Month, cont.

May, cont.

Lamiastrum galeobdolon (April and May)
Mertensia virginica (April and May)
Paeonia lactiflora (May and June)
Paeonia suffruticosa (May and June)
Paeonia tenuifolia rubra plena (May)
Phlox stolonifera (May and June)
Phlox subulata (March and May)
Polemonium caeruleum (May and June)
Primula x polyantha (April and May)
Pulmonaria angustifolia (April and May)
Pulmonaria saccharata (April and May)
Thymus serpyllum (May and June)
Tiarella cordifolia (May)
Trollius europaeus (May and June)
Viola odorata (April and May)
Waldsteinia fragarioides (May and June)

June, cont.

Lupinus ‘Russell Hybrid’ (June)
Lychnis chalcedonica (June and July)
Monarda didyma (June to August)
Oenothera fruticosa (June to August)
Paeonia lactiflora (May and June)
Paeonia suffruticosa (May and June)
Papaver orientale (June and July)
Polemonium caeruleum (May and June)
Rudbeckia fulgida (June to September)
Saponaria ocymoides (June)
Stokesia laevis (June to September)
Teucrium chamaedrys (June and July)
Thymus serpyllum (May and June)
Trollius europaeus (May and June)
Veronica spicata (June to August)
Waldsteinia fragarioides (May and June)
Yucca filamentosa (June to August)

June

Achillea filipendulina (June to August)
Anthemis tinctoria (June to September)
Aquilegia hybrida (May and June)
Armeria maritima (May and June)
Asclepias tuberosa (June to August)
Aster x arendsii (June and July)
Brunnera macrophylla (April to June)
Campanula carpatica (June to August)
Campanula persicifolia (June and July)
Centanrea montana (May to July)
Cerastium tomentosum (May and June)
Chrysanthemum coccineum (June and July)
Clematis x jackmani (June to September)
Coreopsis lanceolata (June to September)
Coreopsis verticillata (June to September)
Delphinium elatum (June and July)
Dianthus plumarius (May and June)
Dicentra eximia (May to September)
Dicentra spectabilis (May and June)
Dictamnus albus (May and June)
Digitalis purpurea (June and July)
Epimedium x rubrum (May and June)
Erigeron speciosus (June and July)
Gaillardia x grandiflora (June to September)
Galium odoratum (May and June)
Gypsophila paniculata (June and July)
Hemerocallis hybrids (May to September)
Heuchera sanguinea (June and July)
Iris hybrids (May and June)
Iris ensata (June and July)
Iris sibirica (June)
Lavandula angustifolia (June to September)
Linum perenne (June to August)
Lychnis chalcedonica (June and July)
Monarda didyma (June to August)

July

Acanthus spinosissimus (July and August)
Achillea filipendulina (June to August)
Achillea millefolium (June to September)
Anthemis tinctoria (June to September)
Asclepias tuberosa (June to August)
Aster x arendsii (June and July)
Belamcanda chinensis (June to September)
Campanula carpatica (June to August)
Campanula persicifolia (June and July)
Catananche caerulea (July and August)
Centanrea montana (May to July)
Chrysanthemum coccineum (June and July)
Cimicifuga racemosa (July and August)
Clematis x jackmani (June to September)
Coreopsis lanceolata (June to September)
Coreopsis verticillata (June to September)
Delphinium elatum (June and July)
Dicontra eximia (May to September)
Digitalis purpurea (June and July)
Echinacea purpurea (June to September)
Echinops exaltatus (July to September)
Erigeron speciosus (June and July)
Eryngium amethystinum (July and August)
Gaillardia x grandiflora (June to September)
Gypsophila paniculata (June and July)
Helenium autumnale (July to October)
Hemerocallis hybrids (May to September)
Heuchera sanguinea (June and July)
Iris ensata (June and July)
Lavandula angustifolia (June to September)
Liatis spicata (July to September)
Linum perenne (June to August)
Lobelia cardinalis (June to September)
Lychnis chalcedonica (June and July)
Monarda didyma (June to August)
### July, cont.

- **Oenothera fruticosa** (June to August)
- **Papaver orientale** (June and July)
- **Phlox paniculata** (July to September)
- **Physostegia virginiana** (July to September)
- **Rudbeckia fulgida** (June to September)
- **Stokesia laevis** (June to September)
- **Teucrium chamaedrys** (June and July)
- **Veronica spicata** (June to August)
- **Yucca filamentosa** (June to August)

### August

- **Acanthus spinosissimus** (July and August)
- **Achillea filipendulina** (June to August)
- **Achillea millefolium** (July to September)
- **Aconitum napellus** (August and September)
- **Anthemis tinctoria** (June to August)
- **Asclepias tuberosa** (June to August)
- **Aster novae-belgii** (August to October)
- **Astillbe chinensis** (July to August)
- **Belamcanda chinensis** (July to September)
- **Campanula carpatica** (June to August)
- **Catiananche caerulea** (July and August)
- **Ceratostigma plumbaginoides** (August to October)
- **Chrysanthemum morifolium** (August to October)
- **Cimicifuga racemosa** (July and August)
- **Clematis x jackmanii** (June to September)
- **Coreopsis lanceolata** (June to September)
- **Coreopsis verticillata** (June to September)
- **Dicentra exima** (May to September)
- **Echinacea purpurea** (July to September)
- **Echinops exaltatus** (July to September)
- **Gaillardia x grandiflora** (June to September)
- **Helenium autumnale** (July to October)
- **Hemerocallis hybrids** (May to September)
- **Hibiscus moscheutos** (July to October)
- **Hosta plantaginea** (August and September)
- **Lavandula angustifolia** (June to September)
- **Liatris spp.** (July to September)
- **Lobelia cardinalis** (July to September)
- **Lythrum salicaria** (July to September)
- **Phlox paniculata** (July to September)
- **Physostegia virginiana** (July to September)
- **Platycodon grandiflorus** (July to September)
- **Sedum spectabile** (August to October)
- **Stokesia laevis** (June to September)

### September

- **Achillea millefolium** (July to September)
- **Aconitum napellus** (August and September)
- **Anthemis tinctoria** (June to September)
- **Aster novae-belgii** (August to October)
- **Belamcanda chinensis** (July to September)
- **Ceratostigma plumbaginoides** (August to October)
- **Chrysanthemum morifolium** (August to October)
- **Clematis x jackmanii** (June to September)
- **Coreopsis lanceolata** (June to September)
- **Coreopsis verticillata** (June to September)
- **Dicentra exima** (May to September)
- **Echinacea purpurea** (July to September)
- **Echinops exaltatus** (July to September)
- **Gaillardia x grandiflora** (June to September)
- **Helenium autumnale** (July to October)
- **Hemerocallis hybrids** (May to September)
- **Hibiscus moscheutos** (July to October)
- **Hosta plantaginea** (August and September)
- **Lavandula angustifolia** (June to September)
- **Liatris spp.** (July to September)
- **Lobelia cardinalis** (July to September)
- **Lythrum salicaria** (July to September)
- **Phlox paniculata** (July to September)
- **Physostegia virginiana** (July to September)
- **Platycodon grandiflorus** (July to September)
- **Sedum spectabile** (August to October)
- **Stokesia laevis** (June to September)

### October

- **Aster novae-belgii** (August to October)
- **Ceratostigma plumbaginoides** (August to October)
- **Helenium autumnale** (July to October)
- **Hibiscus moscheutos** (July to October)
- **Sedum spectabile** (August to October)

### Plants that are Rabbit Resistant

- **Achillea**
- **Aconitum**
- **Anaphalis margaritacea**
- **Artemisia**
- **Aster**
- **Astillbe**
- **Baptisia australis**
- **Bergenia**
- **Campanula persicifolia**
- **Cimicifuga**
- **Colchicum autumnale**
- **Digitalis**
- **Doronicum ‘Miss Mason’**
- **Epimedium**
- **Filipendula hexapetala**
- **Geranium**
- **Hosta**
- **Kniphofia**
- **Myrrhis odorata**
- **Narcissus**
- **Papaver orientale**
- **Salvia argentea**
- **Sedum spectabile**
- **Stachys byzantina**
- **Trollius**
- **Yucca**
Perennials That Are Known For Fragrance

Cimicifuga
Clematis montana var. rubens
Convallaria
Dianthus
*Geranium
Hemerocallis ‘Hyperion’
Hemerocallis ‘Joan Senior’
Hosta plantaginea
*Hosta ‘Royal Standard’
Hosta ‘So Sweet’
*Houttuynia
Iris germanica
*Lamium
*Lavandula

*Fragrant Foliage

Lilium ‘Oriental’
*Monarda
*Nepeta
*Origanum
*Paeonia
*Perovskia
Phlox
*Phlox divaricata
*Rosmarinus officinalis
*Santolina
*Salvia
*Santolina
*Thymus
Viola

Fragrant Foliage

Plants for Ground Covers

Ajuga reptans
Alchemilla mollis
Arctostaphylos uva-ursi
Asarum spp.
Aster ericoides ‘Snow Flurry’
Astile thimensis
Bergenia cordifolia
Carex flaccosperma
Carex morrowii ‘Ice Dance’
Catharanthus roseus
Ceratostigma plumbaginoides
Chrysogonum virginianum
Convallaria majalis
Cotoneaster dammeri
Cotoneaster salicifolius
Epimedium x perralchicum
Epimedium x versicolor
Festuca ovina var. glauca
Galium odoratum
Gaultheria procumbens
Geranium x cantabrigiense
Heuchera americana
Juniperus horizontalis
Lamium maculatum
Liriope spicata
Mazus reptans
Microbiota decussata
Phlox stolonifera
Phlox subulata
Rubus calycinoides
Sarcococca hookeriana var. humilis
Sedum acre
Sedum spurium ‘John Creech’
Stachys byzantina
Teucrium chamaedrys
Thymus spp.
Tiarella cordifolia
Veronica spp.
Waldsteinia ternata

Summer Flowering Woody Plants

Trees

Clethra barbinervis
Franklinia alatamaha
Heptacodium miconioides
Koelreuteria paniculata
Lagerstroemia
Magnolia virginiana
Oxydendrum arboreum
Styphnolobium japonicum
Stewartia ovata
Stewartia pseudocamellia

June-September
July-September
August
July
August
July-September
July-August
July-August
July

Shrubs

Abelia ‘Edward Goucher’
Abelia x grandiflora
Aesculus parviflora
Callicarpa dichotoma
Calluna vulgaris
Caryopteris x clandonensis
Clethra acuminata
Clethra alnifolia
Clethra alnifolia
Cornus kousa
Cornus sericea
Cotinus coggyria
Daphne x transatlantica ‘Jim’s Pride’
Hibiscus syriacus
Hydrangea arborescens

August-September
May-June then sporadically

Hydrangea macrophylla
Hydrangea paniculata
Hydrangea quercifolia
Hypericum calycinum
Hypericum frondosum
Potentilla fruticosa
Rhododendron arborescens
Rhododendron pseudofluminum
Rhododendron viscosum
Spiraea x bumalda
Viburnum plicatum var. tomentosum ‘Watanabei’

July-September
July-September
June-July
June-July
June-July
June-September
June-August
June-August
June-frost
June-frost

Vines

Clematis various
Hydrangea anomala subsp. petiolaris
Lonicera x heckrottii
Schizophragma hydrangeoides

June-September
Late June
June-frost
June-July
### pH Requirements for Common Ornamental Plants

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>pH range</th>
<th>Acid 4.5&lt;pH&lt;6</th>
<th>Slightly acid 6&lt;pH&lt;7</th>
<th>Slightly alkaline 7&lt;pH&lt;8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abelia x grandiflora</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abies balsamea</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abies fraseri</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acer buergerianum</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acer campestre</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Acer griseum</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Acer nikoense</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acer pensylvanicum</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acer rubrum</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acer saccharum</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Acer triflorum</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesculus glabra</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesculus hippocastanum</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Aesculus parviflora</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amelanchier arborea</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amelanchier canadensis</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arctostaphylos uva-ursi</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aronia spp.</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betula lenta</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betula nigra</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betula pendula</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buxus sempervirens</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calluna vulgaris</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calycanthus floridus</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Carpinus caroliniana</td>
<td>XXXX</td>
<td></td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Carya ovata</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Castanea spp.</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cephalanthus occidentalis</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Celastrus scandens</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Cercis canadensis</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Chaenomeles japonica</td>
<td>XXXX</td>
<td></td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Chamaecyparis obtusa</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chionanthus virginicus</td>
<td>XXXX</td>
<td></td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Cladostis keutkea</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Clematis spp.</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clethra alnifolia</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cornus alternifolia</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cornus florida</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cornus kousa</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cornus mas</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cornus sericea</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corylopsis glabrescens</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### pH Requirements for Common Ornamental Plants

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>pH range</th>
<th>Acid 4.5&lt;pH&lt;6</th>
<th>Slightly acid 6&lt;pH&lt;7</th>
<th>Slightly alkaline 7&lt;pH&lt;8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corylus column</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corylus americana</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotinus coggygria</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Cotoneaster horizontalis</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotoneaster spp.</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crataegus spp.</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Daphne spp.</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deutzia spp.</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enkianthus campanulatus</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fagus grandifolia</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forsythia spp.</td>
<td>XXXX</td>
<td></td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Franklinia alatamaha</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fraxinus americana</td>
<td>XXXX</td>
<td></td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Ginkgo biloba</td>
<td>XXXX</td>
<td></td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Gleditsia triacanthos</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gymnocladus dioicus</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Halesia carolina</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hamamelis virginiana</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hibiscus syriacus</td>
<td>XXXX</td>
<td></td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Hydrangea anomala subsp. petiolaris</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrangea paniculata</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypericum prolificum</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ilex aquifolium</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ilex crenata</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ilex glabra</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ilex x meserveae</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ilex opaca</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ilex verticillata</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juniperus horizontalis</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kalmar latifolia</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Koelreuteria paniculata</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Kolkwitzia amabilis</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laburnum x watereri</td>
<td></td>
<td></td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Larix decidua</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leucothoe fontanesiana</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidambar styraciflua</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lindera benzoin</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liriodendron tulipifera</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnolia grandiflora</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnolia soulangiana</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnolia stellata</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnolia virginiana</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mahonia aquifolium</td>
<td>XXXX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malus floribunda</td>
<td>XXXX</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant Name</td>
<td>pH Range</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malus prunifolia</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metasequoia glyptostroboides</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morella caroliniensis</td>
<td>Slightly acid 6&lt;pH&lt;7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nyssa sylvatica</td>
<td>Slightly alkaline 7&lt;pH&lt;8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ostrya virginiana</td>
<td>Slightly alkaline 7&lt;pH&lt;8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxydendrum arboreum</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paxistima canbyi</td>
<td>Slightly alkaline 7&lt;pH&lt;8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philadelphus coronarius</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photinia villosa</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picea abies</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picea pungens</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picea glauca</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picea omorika</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pieris japonica</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinus aristata</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinus cembra</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinus densiflora</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinus mugo</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinus resinoso</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinus strobus</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinus sylvestris</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinus wallichiana</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platanus occidentalis</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prunus cerasifera</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prunus virginiana</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pseudotsuga menziesii</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyracantha coccinea</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus alba</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus bicolor</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus imbricaria</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus palustris</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus phellos</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus robur</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus rubra</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus velutina</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhododendron carolinianum</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhododendron catawbiense</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhododendron mucronulatum</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhododendron obtusum</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhus aromaticus</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosa spp.</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosa wichuraiana</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salix babylonica</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sassafras albidum</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciadopitys verticillata</td>
<td>Acid 4.5&lt;pH&lt;6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lime and Adjusting pH

Soil pH, or soil reaction, is a measure of the acidity or alkalinity of the soil. On a scale of 0 to 14, a pH of 7.0 is neutral, below 7 the pH becomes more acidic while above 7 soil becomes more alkaline. Generally, ornamental plants grow best between pH 5.5 and 7.5, with some preferring the lower end of the range and others the higher end. Plants grow better when planted in a soil at the optimum pH for the plant species. The soil pH influences the availability of the various mineral elements needed for plant growth. Maximum availability of most plant nutrients occurs at approximately 6.5. Soil pH is regulated by the amount of bases (calcium, magnesium, and potassium) relative to the hydrogen ion concentration present in the soil. In areas like Long Island, the soil pH is normally low (acidic) due to the parent material from which the soil developed. Applying lime increases the soil pH. Overtime, calcium and magnesium levels decrease due to plant uptake and leaching from precipitation and irrigation causing the pH to become more acidic. Always take a composite soil sample and have the pH tested.

Lime Products

Agricultural limestone is a term used for types of lime used in agriculture including calcite, or dolomite, calcium oxide, and calcium hydroxide.

- **Calcitic limestone**: mostly calcium carbonate
- **Dolomitic limestone**: has a higher concentration of magnesium than calcitic limestone. Dolomitic limestone will vary in the concentration of magnesium.
- **Calcium oxide**: also called quicklime or burned lime. Produced by heating limestone.
- **Calcium hydroxide**: also called hydrated or slaked lime. Produced by adding water to calcium oxide.
- **Marl**: lime harvested from fresh-water deposits created from alkaline water runoff from nearby land.
- **Basic slag**: material left over from iron smelting or other industries. Can contain trace elements, sometimes boron.

The amount of lime required to effect a change in pH is determined by the texture of the soil, type and purity of lime used, and particle size. The Calcium Carbonate Equivalent (CCE) is a measure of the capability that the liming material can neutralize acid compared to pure calcium carbonate. Even mined calcite will not have a CCE of 100%. Pure dolomitic limestone has a CCE of 119% or has 19% more neutralizing power than calcium carbonate. Calcium hydroxide has a CCE of 136%.

<table>
<thead>
<tr>
<th>Material</th>
<th>Chemical formula</th>
<th>% CCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure calcitic limestone</td>
<td>CaCO₃</td>
<td>100</td>
</tr>
<tr>
<td>Dolomitic limestone</td>
<td>MgCO₃</td>
<td>119</td>
</tr>
<tr>
<td>Calcium oxide, quicklime, burned lime</td>
<td>CaO</td>
<td>179</td>
</tr>
<tr>
<td>Calcium hydroxide; hydrated or slaked lime</td>
<td>Ca(OH)₂</td>
<td>136</td>
</tr>
<tr>
<td>Marl</td>
<td>CaCO₃</td>
<td>70-90</td>
</tr>
<tr>
<td>Basic slag</td>
<td>CaSiO₃</td>
<td>60-90</td>
</tr>
</tbody>
</table>

CCE = Calcium Carbonate Equivalent

Common Conversion Factors:

- \( \text{CaO} \times 1.79 = \text{CaCO}_3 \)
- \( \text{MgO} \times 2.50 = \text{CaCO}_3 \)
- \( \text{MgCO}_3 \times 1.19 = \text{CaCO}_3 \)
- \( \text{Ca(OH)}_2 \times 1.36 = \text{CaCO}_3 \)
- \( \text{CaCO}_3 \times 0.56 = \text{CaO} \)
- \( \text{CaCO}_3 \times 0.4 = \text{MgO} \)
- \( \text{CaCO}_3 \times 0.84 = \text{MgCO}_3 \)
- \( \text{CaCO}_3 \times 0.73 = \text{Ca(OH)}_2 \)
- \( \text{MgO} \times 0.602 = \text{Mg} \)
- \( \text{MgCO}_3 \times 0.288 = \text{Mg} \)
- \( \text{Mg} \times 1.66 = \text{MgO} \)
- \( \text{Mg} \times 3.47 = \text{MgCO}_3 \)
- \( \text{CaCO}_3 \times 0.400 = \text{Ca} \)
- \( \text{CaO} \times 0.714 = \text{Ca} \)
- \( \text{Ca} \times 2.5 = \text{CaCO}_3 \)
- \( \text{Ca} \times 1.4 = \text{CaO} \)

Particle size is measured by passing the lime through sieves of various sizes. The fineness of the material affects how rapidly the lime will react in the soil. Finer mesh sieves have a higher % efficiency rating, therefore the greater the amount of lime that passes through finer mesh sieves, the quicker the reaction time. The Effective Neutralizing Value (ENV) of the lime material is calculated based on both the CCE and the particle sizes. The ENV can be found on the package of lime.

Soil texture also affects the amount of lime required to change the pH. Finer soils or soils higher in clay require more lime to effect a change in pH than coarser soils.
Limestone Recommendations to Raise the Soil pH to 6.2 (lbs of limestone/1,000ft²)

- The amount of limestone needed to raise the soil pH to 6.2, is based upon initial soil pH and soil texture.
- Use the 2.5" depth rate when you are performing maintenance applications to established lawns and landscapes.
- Use the 8" depth rate when you are fully incorporating the lime, such as during initial lawn or bed preparation.

<table>
<thead>
<tr>
<th>Initial Soil pH</th>
<th>Loamy Sand 2.5&quot; 8&quot;</th>
<th>Sandy Loam 2.5&quot; 8&quot;</th>
<th>Loam 2.5&quot; 8&quot;</th>
<th>Silt Loam 2.5&quot; 8&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>31 92 47 138</td>
<td>78 230</td>
<td>109 321</td>
<td></td>
</tr>
<tr>
<td>4.6-4.7</td>
<td>31 92 47 138</td>
<td>78 230</td>
<td>109 321</td>
<td></td>
</tr>
<tr>
<td>4.8-4.9</td>
<td>23 69 39 115</td>
<td>70 207</td>
<td>101 298</td>
<td></td>
</tr>
<tr>
<td>5.0-5.1</td>
<td>23 69 31 92</td>
<td>62 184</td>
<td>94 275</td>
<td></td>
</tr>
<tr>
<td>5.2-5.3</td>
<td>16 46 31 92</td>
<td>55 161</td>
<td>86 253</td>
<td></td>
</tr>
<tr>
<td>5.4-5.5</td>
<td>12 37 23 69</td>
<td>39 115</td>
<td>62 184</td>
<td></td>
</tr>
<tr>
<td>5.6-5.7</td>
<td>8 23 16 46</td>
<td>31 92</td>
<td>47 138</td>
<td></td>
</tr>
<tr>
<td>5.8-5.9</td>
<td>8 23 12 37</td>
<td>16 46</td>
<td>31 92</td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td>5 14 8 23</td>
<td>12 37</td>
<td>16 46</td>
<td></td>
</tr>
</tbody>
</table>

- To calculate limestone rate in tons per acre, multiple the lbs./1,000ft² rate by 43.56, and then divide by 2000.

Adjusting Aglime Material Required:
Limestone recommendation × 100
ENV of the aglime being used

Example:
Soil test result recommends 4 tons of limestone per acre
ENV (from package of lime) = 80%

4 tons × 100 = 5 tons of lime product is required 80

Soils heavily limed may be too alkaline for certain plants such as those in the family Ericaceae including rhododendron, azalea, Kalmia, Leucothoe, Pieris, etc. Soil pH can be decreased through the addition of several materials. Caution should be used with aluminum sulfate since the available aluminum in the soil will increase and could be toxic to sensitive plants.

Materials and Rate to Decrease the Soil pH by 1 Unit below pH 6.0.

<table>
<thead>
<tr>
<th>Material</th>
<th>Sandy Loam</th>
<th>Loam</th>
<th>Clay Loam or Peat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Sulfate</td>
<td>2.5</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Iron Sulfate</td>
<td>2.5</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Sulfur</td>
<td>0.5</td>
<td>1</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Cornell Cooperative Extension - Suffolk County has a lab which tests soil for pH and soluble salts at its location at 423 Griffing Avenue, Riverhead, NY. Samples can also be dropped off at our location at the Bayard Cutting Arboretum, Montauk Highway, Oakdale, NY and staff members will forward the samples to the lab in Riverhead. The cost for testing per sample is $5. For more information contact Cornell Cooperative Extension.

Amount of Sod Required to Cover an Area

1 Pallet = 600 ft²
1 piece = 10 ft²

Volume of Mulch Needed to Cover an Area 3” Deep

<table>
<thead>
<tr>
<th>Cubic yards</th>
<th>will cover square feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>108</td>
</tr>
<tr>
<td>2</td>
<td>216</td>
</tr>
<tr>
<td>3</td>
<td>324</td>
</tr>
<tr>
<td>4</td>
<td>432</td>
</tr>
<tr>
<td>5</td>
<td>540</td>
</tr>
<tr>
<td>10</td>
<td>1080</td>
</tr>
<tr>
<td>20</td>
<td>2160</td>
</tr>
<tr>
<td>30</td>
<td>3240</td>
</tr>
<tr>
<td>40</td>
<td>4320</td>
</tr>
<tr>
<td>50</td>
<td>5400</td>
</tr>
<tr>
<td>100</td>
<td>10800</td>
</tr>
</tbody>
</table>
Useful Formulas for Calibrating a Pesticide Sprayer

GPM – Gallons Per Minute
GPA – Gallons Per Acre
MPH – Miles Per Hour
W - Nozzle spacing (in inches) for broadcast spraying
W - Spray width (in inches) for single nozzle, band spraying or boomless spraying.

Speed (MPH) = \frac{\text{Distance (ft)}}{\text{Time (sec) x 88}}

GPM = \frac{\text{GPA} \times \text{MPH} \times W}{5940}

(Per Nozzle)

GPA = \frac{5940 \times \text{GPM (Per Nozzle)}}{\text{MPH} \times W}

GPM = \frac{\text{GAL}/1000FT^2 \times \text{MPH} \times W}{136}

(Per Nozzle)

GAL/1000FT^2 = \frac{136 \times \text{GPM (Per Nozzle)}}{\text{mph} \times W}

Amount of Growing Media for Containers

Although nursery container size and shape will vary, use the following as a general guideline.

- 1 bag (2.8cf) of media will fill:
  - 21 - 1 gal containers
  - 12 - 2 gal containers
  - 9 - 3 gal containers

- 1 bale (3.8cf) of media will fill:
  - 49 - 1 gal containers
  - 28 - 2 gal containers
  - 20 - 3 gal containers

Irrigation Abbreviations and Conversion Factors

Abbreviations for Common Units

ft hd feet of head
ft/min feet per minute
ft/sec feet per second
gph gallons per hour
gpm gallons per minute
hr hour
in inches
in/hr inches/hour
l/sec liters/sec
m meters
mm millimeters
m hd meters of head
m/sec meters per second
min/wk minutes per week
psi pounds per square inch

Multiply by To obtain
psi
6.89476 kilopascals
psi
0.068948 bars
bars
100 kilopascals
psi
2.31 feet of head

Velocity

Multiply by To obtain
ft/sec
0.3048 meter/second

Power

Multiply by To obtain
Kilowatts
1.3410 horsepower

Flow and Water Volume

Multiply by to obtain
U.S. Gallons per minute (gpm) 0.1337 Cubic feet per minute
Cubic feet per minute 7.48 U.S. gallons per minute
Cubic feet per second 448.8 U.S. gallons per minute
U.S. gallons per minute 0.00223 Cubic feet per second
Acre inches per hour 453 U.S. gallons per minute
British Imperial gallons 1.201 U.S. gallons
U.S. gallons 0.833 British Imperial gallons
Acre feet 325,850 U.S. gallons
Acre inches 27154 U.S. gallons
Velocity in feet per second

\[
(0.408 \times \text{GPM}) / \text{Inside diameter of pipe in inches, squared}
\]

\(Q = AV\) (quantity = area x velocity) (“the basic equation of water flow”) (example: quantity in feet per second = square feet of area x feet per second velocity)

One inch of water depth = 0.62 gallons per square foot of area

Water Pressure

\[
\begin{align*}
\text{Multiply} & \quad \text{by} \quad \text{to obtain} \\
\text{ft hd} & \quad 0.433 \quad \text{psi} \\
\text{psi} & \quad 2.31 \quad \text{ft hd} \\
\text{m hd} & \quad 3.28 \quad \text{ft hd} \\
\text{ft hd} & \quad 0.3049 \quad \text{m hd}
\end{align*}
\]

Precipitation Rates

Equilateral Triangular Spacing with a 360\(^\circ\) Arc

Customary:

\[
\text{In/hr} = \frac{\text{GPM} \times 96.25}{(\text{Head Spacing})^2 \times 0.866}
\]

Metric:

\[
\text{mm/hr} = \frac{\text{meter}^3 \times 1000}{\text{meter}^2 \times 0.866}
\]

Square/Rectangular Spacing

\[
\begin{align*}
\text{In/hr} & = \frac{\text{GPM} \times 96.25}{\text{Head Spacing} \times \text{Row Spacing}} \\
\text{mm/hr} & = \frac{\text{m}^3 \times 1000}{\text{Head Spacing} \times \text{Row Spacing}}
\end{align*}
\]

Square/Rectangular Spacing for Specific Arc

\[
\begin{align*}
\text{In/hr} & = \frac{34650 \times \text{GPM}}{\text{Degrees of Arc} \times \text{Head Spacing} \times \text{Row Spacing}} \\
\text{mm/hr} & = \frac{\text{m}^3/\text{hr} \times 1000}{\text{Degrees of Arc} \times \text{Head Spacing} \times \text{Row Spacing}}
\end{align*}
\]

Horsepower (expressed as a decimal)

\[
\text{GPM} \times \text{ft of head} \times 3960 \times \text{pump efficiency}
\]

Run Time

\[
\text{Min/wk} = \frac{\text{total weekly requirement (in/wk) \times 60 (min/hr)}}{\text{precipitation rate (in/hr)}}
\]

\[
\text{Min/wk} = \frac{\text{total weekly requirement (mm/wk) \times 60 (min/hr)}}{\text{precipitation rate (mm/hr)}}
\]
Recent NY State Laws Affecting the Horticulture Industry

Spotted Lanternfly Protective Zone Order & Quarantine
Effective October 2018
Spotted lanterfly (*Lycorma delicatula*), a planthopper first detected in Pennsylvania in 2014, was detected in Suffolk County in October 2018. In response to detections in Suffolk County and other earlier detections in New York, a Quarantine and Protective Zone Order was implemented. The purpose of the Quarantine is to help slow the spread of the pest from infested areas from establishing within NYS. The Quarantine requires certificates of inspection issued from the impacted states on the following regulated articles entering NYS:

- Any living life stage of the SLF.
- Brush, debris, bark, or yard waste.
- Landscaping, remodeling, or construction waste.
- Logs, stumps, or any tree parts.
- Firewood of any species.
- All plants and plant parts, including but not limited to nursery stock, green lumber, fruit and produce and other material living, dead, cut, fallen (including stumps), roots, branches, mulch, and composted and uncomposted chips.
- And many other items including trucks, landscaping equipment, outdoor items, etc.

For a complete list of quarantine items, visit the NYS Department of Agriculture and Markets: https://www.agriculture.ny.gov/AD/release.asp?ReleaseID=3821

The Spotted Lanternfly Protective Zone Order further assists in the prevention of this pest by conducting surveys, and timely monitoring of the pest in affected areas. Protective Zones are established in the following counties: Bronx, Broome, Chemung, Chenango, Delaware, Dutchess, Greene, Kings, Nassau, Orange, Otsego, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Tioga, Ulster and Westchester.

To learn more about the pest, visit the NYSDEC Spotted Lanternfly information page at http://www.dec.ny.gov/animals/113303.html

Oak Wilt Protective Zone Order
Effective March 2017
In response to the oak wilt detections across Suffolk County in 2016, the NYSDEC issued a Protective Zone Order that covers all of Suffolk County to limit the rate of spread of oak wilt. A protective zone is ordered when 3 or more towns have confirmed pest detections within a county. Oak wilt is a serious fungal disease that affects all oak species in our region, especially oaks in the red oak group.

*Shipment of Oak Trees Outside of Suffolk County*
Nurseries operating within the Oak Wilt Protective Zone will still be able to ship oaks outside of Suffolk County, but first a limited permit needs to be issued by a NYS Agriculture and Markets Horticultural Inspector under a compliance agreement. The compliance agreement and limited permit are renewed annually.

If you need a Nursery Shipping Compliance Agreement for Oak or have questions regarding the limited permit, contact your NYS Ag and Markets Suffolk County Horticultural Inspector:
Michael Dorgan –Supervisor, 516-315-9003
michael.dorgan@agriculture.ny.gov

Bruce Amundsen- South Shore, 631-831-6897
bruce.amundsen@agriculture.ny.gov

Bob Leonti- North Shore, 631-831-6895
robert.leonti@agriculture.ny.gov

*Movement of Firewood and Wood Products Outside of Suffolk County*
Transportation of firewood or wood products outside of Suffolk County can only occur from August to March, and is not allowed from April 1st to July 31st. Shipment or movement of firewood and/or forest products is possible with a limited permit issued by the NYSDEC Division of Lands and Forests; some exceptions apply. Visit the NYSDEC firewood information website at http://www.dec.ny.gov/animals/28722.html for more information or contact DEC Forest Health with any firewood/wood products permitting questions at 631-640-0652.

To learn more about oak wilt, the protective zone order, and NYS firewood regulations visit the NYS DEC Oak Wilt website at http://www.dec.ny.gov/lands/46919.html.

Prohibited and Regulated Invasive Species
Effective March 2015
The purpose of the regulation is to manage invasive species that have been classified as either “regulated” or “prohibited.” The list covers several different categories of invasive organisms, however this synopsis pertains to invasive terrestrial plants only. To view a complete list of prohibited and regulated plants go to page 37.
Plants on the Prohibited List will not be allowed for intent to sell, import, purchase, transport, introduction, or propagation. Regulated plants will be allowed for possession, sale, purchase, propagation and transport however, introduction into a "free-living state" either purposely or accidentally will be illegal. Free-living states are defined as natural areas, public lands, lands that are continually or intermittently connected to public lands, and various public waterways, including water-using facilities with outflow to public waters. Regulated plants that are offered for sale or sold must be affixed with official labeling noting its potential environmental impacts. Refer to Part 575.6 in the Express Terms (http://www.dec.ny.gov/regulations/93848.html) for details on labeling specifications, and other details pertaining to the regulation.

**Phosphorus Fertilizer Restrictions**
**Effective 2012**

A phosphorus fertilizer is defined as a fertilizer with a phosphate content of 0.67% or greater, not including compost. This law prohibits the use of phosphorus fertilizer on non-agricultural turf in New York State EXCEPT when:

- a soil test demonstrates that additional P is needed for growth OR
- when applied to newly established turf during the first growing season.

Even if a soil test shows that additional P is needed, application of P to non-agricultural turf is PROHIBITED:

- between December 1st and April 1st;*
- within 3 feet of surface water where there is at least a 10 foot buffer of continuous natural vegetation and a spreader guard, deflector shield, or drop spreader is used to apply the fertilizer, EXCEPT when applied to newly established turf during the first growing season.*
- within 20 feet of surface water without a 10 foot buffer and a spreader guard, deflector shield, or drop spreader is not used, EXCEPT when applied to newly established turf during the first growing season.*

Application of fertilizer to any impervious surface, including parking lots, roadways, and sidewalks, is also prohibited. If such application does occur, the fertilizer must be immediately contained and either legally applied or placed in an appropriate container.

Retailers who sell any fertilizer with a phosphate content of 0.67% or greater, must:

- Display P-containing fertilizer separately from non-P-containing fertilizer; and
- Display a sign at least 8 1/2” X 11” in size near the P-containing fertilizer that says,

“Phosphorus runoff poses a threat to water quality. Therefore, under New York law, phosphorus-containing fertilizer may only be applied to lawn or non-agricultural turf when: (1) A soil test indicates that additional phosphorus is needed for growth of that lawn or non-agricultural turf; or (2) The fertilizer is used for newly established lawn or non-agricultural turf during the first growing season.”

*Please note that Long Island county laws relating to timing of fertilizer application and distance to surface waters are more stringent and supersede state laws. See below.

**Pesticide Use Restrictions at Day Care Centers and Schools**
**Effective 2011**

No day care center or public or private school in New York State shall apply pesticides to playgrounds, turf, or athletic and playing fields EXCEPT:

- anti-microbial pesticides;
- aerosol pesticides with a directed spray in containers of 18 fluid ounces or less, when used to protect individuals from an imminent threat from stinging and biting insects;
- non-volatile insect or rodent bait in tamper-resistant containers;
- exempt pesticides as classified by the US EPA under 40 CRF Part 152.25;
- boric acid;
- disodium octaborate tetrahydrate;
- horticultural soaps and oils that do not contain synthetic pesticides or synergists; and
- for emergency pesticide applications as determined by the county health department.

If an emergency application is made, parents and staff must be notified. All other laws pertaining to pesticide lawn care applications still apply.
**Recent County Laws Affecting the Horticulture Industry**

**Suffolk County Turf Fertilizer Reduction Law**
Effective 2009

**Application Restrictions:**
- No fertilizer on county-owned property besides: 1. Golf courses, which must use only the minimum amount of slow-release and organic fertilizers, not to exceed 3lbs of N/1,000 sq ft. 2. Suffolk County Farm, which must establish strategies to meet the goal of nitrogen reduction. 3. Athletic fields, which must develop and implement an annual plan of BMP’s. 4. Newly seeded or planted landscapes and newly seeded or newly sodded areas.
- No fertilizer to turf on non-county-owned property Nov. 1st-April 1st, besides sod farms.
- No fertilizer on county-owned property or to turf on non-county-owned property, within 20 ft. of regulated surface water, unless there is at least a 10 ft. vegetation buffer.

“Fertilizer” is defined as any organic or inorganic source of essential plant nutrients. This definition does NOT include lime, mycorrhizae, or mulch. Compost, manure and compost teas WITHOUT a fertilizer analysis label are also exempt from the application restrictions.

Landscapers in Suffolk County must take a one-time continuing education class on nitrate pollution in order to renew their Consumer Affairs license. Contact 631-853-5957 to find out when the next class is offered.

In addition, the law also requires that retail establishments post signs and informational brochures to advise consumers about the proper use and application of fertilizers and nitrogen pollution. The signs and brochures must be displayed within 10 feet of every fertilizer display area in the store.

**Nassau County Turf Fertilizer Reduction Law**
Effective 2009

**Application Restrictions:**
- No fertilizer to turf on any property (both county and non-county owned property) Nov. 15th-April 1st, except property that is being used to produce an agricultural commodity.

**Amendment to Suffolk County Invasive Plant Species Law (Do Not Sell List)**
Effective November 2015

In November 2015, the Suffolk County legislature adopted local law 30 to amend the Do Not Sell List which regulates non-native invasive plant species. This amendment allows for the sale of cultivars classified as exempt and/or conditionally exempt status as approved by the NYS Cultivar Committee. These cultivars have been scientifically evaluated and found to be either sterile or unlikely to spread to natural areas. To review the exempt cultivar last, refer to page 52.

**Fertilizer Calculations**

Nitrogen (N), phosphorus (P), and potassium (K) in fertilizers are expressed as elemental nitrogen (N) and the oxide forms of phosphorus ($P_2O_5$) and potassium ($K_2O$). When reading soil test reports and recommendations it is important to determine whether the oxide or elemental form is being expressed. If the elemental form is being used, convert to the oxide form before calculating the amount of fertilizer required. No conversion is required for nitrogen since it is always expressed in the elemental form.

**Conversions for P and K:**

\[
\begin{align*}
P \times 2.29 &= P_2O_5 \\
K \times 1.2 &= K_2O \\
P_2O_5 \times 0.44 &= P \\
K_2O \times 0.83 &= K
\end{align*}
\]

**Example 1:**
- Recommendation is to apply 100 lbs of K per acre.
- First convert to the oxide form: $100 \times 1.2 = 120$ lbs of $K_2O$
- If you are using a 0-0-60 fertilizer, apply $\frac{120}{0.60} = 200$ lbs
- 200 lbs per acre of 0-0-60 will apply 100 lbs of K per acre

**Example 2:**
- Recommendation is to apply 100 lbs of N per acre
- No conversion to an oxide form is necessary for N
- If you are using a 20-8-8 fertilizer, apply $\frac{100}{0.20} = 500$ lbs
- 500 lbs per acre of 20-8-8 will apply 100 lbs of N per acre
Essential Plant Nutrients

Certain nutrients are essential for plant growth. These elements may originate from the atmosphere or the soil and roots take up most of them. Currently, seventeen essential nutrients have been identified. Carbon, hydrogen, and oxygen are provided by carbon dioxide and water while the other 14 are taken up from the soil. Macronutrients are required in higher concentrations than micronutrients by plants although concentration does not determine essentiality.

Classification of macro and micronutrients and chemical abbreviation

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macronutrients</td>
<td></td>
</tr>
<tr>
<td>Nitrogen</td>
<td>N</td>
</tr>
<tr>
<td>Potassium</td>
<td>K</td>
</tr>
<tr>
<td>Calcium</td>
<td>Ca</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>P</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Mg</td>
</tr>
<tr>
<td>Sulfur</td>
<td>S</td>
</tr>
<tr>
<td>Micronutrients</td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td>Fe</td>
</tr>
<tr>
<td>Chlorine</td>
<td>Cl</td>
</tr>
<tr>
<td>Manganese</td>
<td>Mn</td>
</tr>
<tr>
<td>Zinc</td>
<td>Zn</td>
</tr>
<tr>
<td>Boron</td>
<td>B</td>
</tr>
<tr>
<td>Copper</td>
<td>Cu</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>Mo</td>
</tr>
<tr>
<td>Nickel</td>
<td>Ni</td>
</tr>
</tbody>
</table>

Nutrient Mobility in Plants

Nutrients move through the plant by way of the vascular system – xylem, where movement is up and phloem where movement can travel in two directions (bi-directional translocation). The degree to which a nutrient is mobile, or capable of being retranslocated in the phloem from one part of the plant to another has an effect on the location where deficiency symptoms appear. Highly mobile elements (see below) can be translocated from older leaves to younger leaves to satisfy the higher demand for the nutrient in the growing parts if the element becomes limiting in the soil. This causes the deficiency symptoms to first appear on older leaves. Elements with intermediate or low mobility cannot be remobilized and moved from older tissue to actively growing areas thus deficiency symptoms appear on younger plant parts.

MOBILITY OF NUTRIENT ELEMENTS IN PLANTS

High Mobility                  Intermediate or Low Mobility
Nitrogen                      Calcium
Phosphorous                   Iron
Potassium                     Manganese
Magnesium                     Zinc
Sulfur                        Copper
Chlorine                      Boron

Correcting a Nutrient Problem

The growth of a plant is determined by the most limiting factor. These growth factors include nutrients, light, water, temperature, CO₂, and O₂. The ‘law of the minimum’, as it is called, can be looked at in the context of nutrient management. The level of nutrients in the plant tissue partly determines plant growth. As the nutrient level increases from a deficient level, plant growth increases. At some point, plant growth levels off even if nutrient levels continue to increase. This area where above adequate nutrient levels exist is also called a ‘luxury zone’. Increasing the nutrient supply does not increase plant growth and eventually can negatively impact growth when elements are in excessive amounts. In addition, excessive amounts of fertilizer, such as nitrogen, can increase certain insect and disease problems. Nutrient management should be approached with this in mind. Once maximum growth is realized, additional fertilizer only wastes money, can increase plant problems, and causes environmental pollution.

Although roots can selectively take up nutrients, too much of one can affect the uptake of others. In other words, it is not the absolute level of nutrients that is important but the ratio among them. Toxicity symptoms of one element might actually be expressed as the deficiency symptoms of another. Plants can be healthy even when the nutrient supply is low as long as the levels are balanced.

Before fertilizing to correct a deficiency, it is important to correctly identify the deficient element. Deficiency symptoms can differ among plant species therefore it is difficult to provide descriptions of symptoms that would apply to most plants. When confronted with a potential problem, foliar and soil testing are advised to determine if a deficiency exists. Be aware that environmental and/or certain pest problems could directly or indirectly cause a nutrient deficiency symptom. In these cases, correcting the growing conditions or managing the pest problem is the best course of action, as applying a fertilizer will most likely not correct the problem. Some nutrient deficiencies, such as iron and manganese, are due to elevated soil pH, which makes the nutrients unavailable for plant uptake. Adjusting the soil pH is the best method for correcting these types of nutrient deficiencies for the long term.

Following are common fertilizer products and nutrient content for various essential nutrients that are sometimes determined deficient in plants.
### Macronutrients

#### Calcium-containing carriers and Ca Content

<table>
<thead>
<tr>
<th>Name</th>
<th>Ca %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liming Materials</strong></td>
<td></td>
</tr>
<tr>
<td>Calcitic limestone</td>
<td>32</td>
</tr>
<tr>
<td>Dolomitic limestone</td>
<td>22</td>
</tr>
<tr>
<td>Hydrated lime</td>
<td>46</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>60</td>
</tr>
<tr>
<td><strong>Fertilizers</strong></td>
<td></td>
</tr>
<tr>
<td>Calcium nitrate</td>
<td>19</td>
</tr>
<tr>
<td>Superphosphate</td>
<td>20</td>
</tr>
<tr>
<td>Triple superphosphate</td>
<td>14</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
</tr>
<tr>
<td>Gypsum</td>
<td>23</td>
</tr>
</tbody>
</table>

#### Magnesium-containing carriers and Mg Content

<table>
<thead>
<tr>
<th>Name</th>
<th>Mg %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liming Materials</strong></td>
<td></td>
</tr>
<tr>
<td>Dolomitic limestone</td>
<td>6-12</td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>50-55</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
</tr>
<tr>
<td>Potassium magnesium sulfate (Sul-Po-Mag)</td>
<td>11</td>
</tr>
<tr>
<td>Magnesium sulfate</td>
<td>10</td>
</tr>
</tbody>
</table>

#### Nitrogen-containing Fertilizers and Nitrogen Content

<table>
<thead>
<tr>
<th>Name</th>
<th>N Content %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inorganic</strong></td>
<td></td>
</tr>
<tr>
<td>Ammonium nitrate</td>
<td>34</td>
</tr>
<tr>
<td>Ammonium sulfate</td>
<td>21</td>
</tr>
<tr>
<td>Anhydrous ammonia</td>
<td>82</td>
</tr>
<tr>
<td>Monoammonium phosphate</td>
<td>11</td>
</tr>
<tr>
<td>Diammonium phosphate</td>
<td>16-18</td>
</tr>
<tr>
<td>Calcium nitrate</td>
<td>16</td>
</tr>
<tr>
<td>Sodium nitrate</td>
<td>16</td>
</tr>
<tr>
<td>Potassium nitrate</td>
<td>13</td>
</tr>
<tr>
<td><strong>Synthetic Organic</strong></td>
<td></td>
</tr>
<tr>
<td>Urea</td>
<td>45-46</td>
</tr>
<tr>
<td>Sulfur-coated urea</td>
<td>40</td>
</tr>
<tr>
<td>Urea-formaldehyde</td>
<td>38</td>
</tr>
<tr>
<td><strong>Natural Organic</strong></td>
<td></td>
</tr>
<tr>
<td>Cotton seed meal</td>
<td>12-13</td>
</tr>
<tr>
<td>Milorganite</td>
<td>12</td>
</tr>
<tr>
<td>Animal manure</td>
<td>10-12</td>
</tr>
<tr>
<td>Sewage sludge</td>
<td>10-20</td>
</tr>
<tr>
<td>Chicken litter</td>
<td>20-40</td>
</tr>
</tbody>
</table>

### Phosphorous-containing Fertilizers and P Content

<table>
<thead>
<tr>
<th>Name</th>
<th>% P₂O₅ Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superphosphate</td>
<td>20</td>
</tr>
<tr>
<td>Triple superphosphate</td>
<td>45</td>
</tr>
<tr>
<td>Monoammonium phosphate</td>
<td>49</td>
</tr>
<tr>
<td>Diammonium phosphate</td>
<td>47</td>
</tr>
<tr>
<td>Ammonium polyphosphate</td>
<td>34</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>55</td>
</tr>
<tr>
<td>Rock Phosphate</td>
<td>3-26</td>
</tr>
<tr>
<td>Bone meal</td>
<td>22-28</td>
</tr>
</tbody>
</table>

### Potassium-containing Fertilizers and K Content

<table>
<thead>
<tr>
<th>Name</th>
<th>K₂O%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium chloride (muriate of potash)</td>
<td>60-63</td>
</tr>
<tr>
<td>Potassium sulfate</td>
<td>50-52</td>
</tr>
<tr>
<td>Potassium magnesium sulfate (Sul-Po-Mag)</td>
<td>22</td>
</tr>
<tr>
<td>Potassium nitrate</td>
<td>44</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>83</td>
</tr>
</tbody>
</table>
Micronutrients

Boron-containing carriers and B Content

<table>
<thead>
<tr>
<th>Name</th>
<th>B %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer borate</td>
<td>14-15</td>
</tr>
<tr>
<td>Foliarel</td>
<td>21</td>
</tr>
<tr>
<td>Solubor</td>
<td>20</td>
</tr>
<tr>
<td>Borax</td>
<td>11</td>
</tr>
</tbody>
</table>

Iron-containing carriers and Fe Content

<table>
<thead>
<tr>
<th>Name</th>
<th>Fe %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous ammonium phosphate</td>
<td>29</td>
</tr>
<tr>
<td>Ferrous ammonium sulfate</td>
<td>14</td>
</tr>
<tr>
<td>Ferric sulfate</td>
<td>19-21</td>
</tr>
<tr>
<td>Iron chelates</td>
<td>5-11</td>
</tr>
<tr>
<td>Iron polyflavonoids</td>
<td>9-10</td>
</tr>
</tbody>
</table>

Manganese-containing carriers Mn Content

<table>
<thead>
<tr>
<th>Name</th>
<th>Content %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese sulfate</td>
<td>26-28</td>
</tr>
<tr>
<td>Manganese oxide</td>
<td>41-68</td>
</tr>
<tr>
<td>Manganese chelate</td>
<td>5-12</td>
</tr>
</tbody>
</table>

Molybdenum-containing carriers and Mo Content

<table>
<thead>
<tr>
<th>Name</th>
<th>Mo %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium molybdate</td>
<td>54</td>
</tr>
<tr>
<td>Sodium molybdate</td>
<td>39-41</td>
</tr>
<tr>
<td>Molybdenum trioxide</td>
<td>66</td>
</tr>
</tbody>
</table>

Zinc-containing carriers and Zn Content

<table>
<thead>
<tr>
<th>Name</th>
<th>Zn %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc sulfate</td>
<td>35</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>78-80</td>
</tr>
<tr>
<td>Zinc chelates</td>
<td>9-14</td>
</tr>
<tr>
<td>Zinc polyflavonoids</td>
<td>10</td>
</tr>
</tbody>
</table>

Conversion factors

Temperature Formulas

°F = 9/5 °C + 32

°F = 5/9 [°C] - 32

Celsius temperature = 0.55556 (Fahrenheit temperature – 32)

Metric Decimal Multiples and Sub multiples

<table>
<thead>
<tr>
<th>Multiples and sub multiples</th>
<th>Prefixes</th>
<th>Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>109 or 1000000000</td>
<td>giga</td>
<td>G</td>
</tr>
<tr>
<td>106 or 1000000</td>
<td>mega</td>
<td>M</td>
</tr>
<tr>
<td>103 or 1000</td>
<td>kilo</td>
<td>k</td>
</tr>
<tr>
<td>102 or 100</td>
<td>hecto</td>
<td>h</td>
</tr>
<tr>
<td>101 or 10</td>
<td>deca</td>
<td>da</td>
</tr>
<tr>
<td>10-1 or 0.1</td>
<td>deci</td>
<td>d</td>
</tr>
<tr>
<td>10-2 or 0.01</td>
<td>centi</td>
<td>c</td>
</tr>
<tr>
<td>10-3 or 0.001</td>
<td>milli</td>
<td>m</td>
</tr>
<tr>
<td>10-6 or 0.000001</td>
<td>micro</td>
<td>µ</td>
</tr>
<tr>
<td>10-9 or 0.00000001</td>
<td>nano</td>
<td>n</td>
</tr>
</tbody>
</table>

Metric base units and abbreviations

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Name of Unit</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Meter</td>
<td>m</td>
</tr>
<tr>
<td></td>
<td>Centimeter</td>
<td>cm</td>
</tr>
<tr>
<td>Mass</td>
<td>Kilogram</td>
<td>Kg</td>
</tr>
<tr>
<td></td>
<td>gram</td>
<td>g</td>
</tr>
<tr>
<td>Volume</td>
<td>Liter</td>
<td>l</td>
</tr>
<tr>
<td></td>
<td>Milliliter</td>
<td>ml</td>
</tr>
</tbody>
</table>

Parts per Million (PPM)

PPM = milligrams/Kilogram = mg/Kg
PPM = milligrams/liter = mg/l

Example:

2 PPM = 2 mg/ l of solution
2 PPM = 1 mg/ 500 ml of solution

PPM = percent (%) x 10^4
% = PPM x .0001

Example:

1% concentration x 10^4 = 10,000 PPM
0.1% concentration x 10^4 = 1,000 PPM

Metric to Customary Conversions

Length/Distance

<table>
<thead>
<tr>
<th>Multiply</th>
<th>by</th>
<th>To obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centimeters</td>
<td>0.394</td>
<td>Inches</td>
</tr>
<tr>
<td>Meters</td>
<td>3.281</td>
<td>Feet</td>
</tr>
<tr>
<td>Meters</td>
<td>1.094</td>
<td>Yards</td>
</tr>
<tr>
<td>Kilometers</td>
<td>0.621</td>
<td>Miles</td>
</tr>
</tbody>
</table>

Mass

<table>
<thead>
<tr>
<th>Multiply</th>
<th>by</th>
<th>To obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grams</td>
<td>0.035</td>
<td>Ounces</td>
</tr>
<tr>
<td>Kilograms</td>
<td>2.205</td>
<td>Pounds</td>
</tr>
</tbody>
</table>
### Volume

<table>
<thead>
<tr>
<th>Multiply</th>
<th>By</th>
<th>To obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milliliters (cc)</td>
<td>0.034</td>
<td>Ounces (US liquid)</td>
</tr>
<tr>
<td>Milliliters (cc)</td>
<td>0.068</td>
<td>Tablespoons</td>
</tr>
<tr>
<td>Milliliters (cc)</td>
<td>0.203</td>
<td>Teaspoons</td>
</tr>
<tr>
<td>Milliliters (cc)</td>
<td>0.061</td>
<td>Cubic inches</td>
</tr>
<tr>
<td>Milliliters (cc)</td>
<td>0.004</td>
<td>Cups (US)</td>
</tr>
<tr>
<td>Liters</td>
<td>4.226</td>
<td>Cups (US)</td>
</tr>
<tr>
<td>Liters</td>
<td>2.113</td>
<td>Pints (US liquid)</td>
</tr>
<tr>
<td>Liters</td>
<td>1.057</td>
<td>Quarts (US liquid)</td>
</tr>
<tr>
<td>Liters</td>
<td>0.264</td>
<td>Gallons</td>
</tr>
<tr>
<td>Cubic meters</td>
<td>35.31</td>
<td>Cubic feet</td>
</tr>
<tr>
<td>Cubic meters</td>
<td>1.308</td>
<td>Cubic yards</td>
</tr>
<tr>
<td>Cubic meters</td>
<td>0.0008</td>
<td>Acre-foot</td>
</tr>
<tr>
<td>Cubic meters</td>
<td>6.290</td>
<td>Bushels</td>
</tr>
</tbody>
</table>

### Area

<table>
<thead>
<tr>
<th>Multiply</th>
<th>By</th>
<th>To obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square inches</td>
<td>6.451</td>
<td>Sq. centimeters</td>
</tr>
<tr>
<td>Square feet</td>
<td>0.093</td>
<td>Square meters</td>
</tr>
<tr>
<td>Square yards</td>
<td>0.836</td>
<td>Square meters</td>
</tr>
<tr>
<td>Acre</td>
<td>4046.9</td>
<td>Square meters</td>
</tr>
<tr>
<td>Acre</td>
<td>0.405</td>
<td>Hectares</td>
</tr>
</tbody>
</table>

### General Conversions:

#### Length/Distance

<table>
<thead>
<tr>
<th>Multiply</th>
<th>By</th>
<th>To obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches</td>
<td>0.083</td>
<td>Feet</td>
</tr>
<tr>
<td>Inches</td>
<td>0.028</td>
<td>Yards</td>
</tr>
<tr>
<td>Feet</td>
<td>12.0</td>
<td>Inches</td>
</tr>
<tr>
<td>Feet</td>
<td>0.333</td>
<td>Yards</td>
</tr>
<tr>
<td>Feet</td>
<td>0.00019</td>
<td>Miles</td>
</tr>
<tr>
<td>Yards</td>
<td>36.0</td>
<td>Inches</td>
</tr>
<tr>
<td>Yards</td>
<td>3.0</td>
<td>Feet</td>
</tr>
<tr>
<td>Yards</td>
<td>0.00057</td>
<td>Yards</td>
</tr>
<tr>
<td>Miles</td>
<td>5280.0</td>
<td>Feet</td>
</tr>
<tr>
<td>Miles</td>
<td>1760.0</td>
<td>Yards</td>
</tr>
</tbody>
</table>

### Mass

<table>
<thead>
<tr>
<th>Multiply</th>
<th>By</th>
<th>To obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ounce</td>
<td>0.062</td>
<td>Pounds</td>
</tr>
<tr>
<td>Pounds</td>
<td>16.0</td>
<td>Ounce</td>
</tr>
<tr>
<td>Pounds</td>
<td>0.0005</td>
<td>Ton (short)</td>
</tr>
<tr>
<td>Tons (short)</td>
<td>2000.0</td>
<td>Pounds</td>
</tr>
</tbody>
</table>

### Volume

<table>
<thead>
<tr>
<th>Multiply</th>
<th>By</th>
<th>To obtain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ounces (US liquid)</td>
<td>29.57</td>
<td>Milliliters (cc)</td>
</tr>
<tr>
<td>Tablespoons</td>
<td>14.79</td>
<td>Milliliters</td>
</tr>
<tr>
<td>Teaspoons</td>
<td>4.929</td>
<td>Milliliters</td>
</tr>
<tr>
<td>Cups (US)</td>
<td>236.6</td>
<td>Milliliters</td>
</tr>
<tr>
<td>Cups (US)</td>
<td>0.237</td>
<td>Liters</td>
</tr>
<tr>
<td>Pints (US liquid)</td>
<td>0.473</td>
<td>Liters</td>
</tr>
<tr>
<td>Quarts (US liquid)</td>
<td>0.946</td>
<td>Liters</td>
</tr>
<tr>
<td>Gallons</td>
<td>3.785</td>
<td>Liters</td>
</tr>
<tr>
<td>Cubic inches</td>
<td>16.39</td>
<td>Milliliters (cc)</td>
</tr>
<tr>
<td>Cubic feet</td>
<td>0.028</td>
<td>Cubic meters</td>
</tr>
<tr>
<td>Cubic yards</td>
<td>0.764</td>
<td>Cubic meters</td>
</tr>
<tr>
<td>Bushel (US)</td>
<td>0.035</td>
<td>Cubic meters</td>
</tr>
<tr>
<td>Acre-foot</td>
<td>1233.5</td>
<td>Cubic meters</td>
</tr>
</tbody>
</table>
Using Growing Degree Days for Insect and other Pest Management

When pest management is based on calendar timings, daily temperatures are not taken into consideration. This can result in misleading information regarding current insect and pest activity. Insects, like plants and many organisms, are dependent on temperature to develop. Depending on weather conditions, especially temperatures, insect and plant development may vary from year to year by a few weeks, consequently predicting the proper time for control measures can be difficult.

Knowing that insect and plant development is dependent on temperature it is possible to utilize daily maximum and minimum temperatures and a “threshold” or “base” temperature and calculate the accumulation of heat units, which are referred to as Growing Degree Days (GDD). By tracking accumulated GDD during the season you can document the rate of development of a particular plant or insect pest. The rate of insect development increases as temperatures exceed the base temperature and decreases as temperatures drop below the base temperature. It is possible to use this information for predicting insect pests as well as certain weed pests.

There are several mathematical equations that can be used to for calculating accumulated GDD based on daily maximum and minimum temperatures. The easiest method is to average the daily maximum and minimum temperatures and subtract from it the base temperature. The threshold or base temperature used for most situations is 50°F.

\[
\text{Max Temp} + \text{Min Temp} - \text{Base Temperature (50°F.)} = \text{Daily GDD}
\]

For each day that the average temperature is one degree above the base temperature, one degree-day accumulates. Each day from March 1 to September 30 the daily GDD is calculated and added to the previous day’s total. If the average temperature falls below the base temperature this would return a negative GDD. In this case the daily GDD calculation should be entered as zero since negative numbers are not included.

Cornell Cooperative Extension – Suffolk County calculates accumulated GDD for a number of locations on Long Island and in New York City. Commercial growers of nursery stock, vegetables and fruit, as well as arborists, landscape gardeners, those in charge of athletic fields, parks, and golf courses and other horticulture related entities can receive this information via email. To sign up for the email, which also includes soil temperatures and precipitation data contact Cornell Cooperative Extension by phone at 631-727-7850, or email Sandra Vultaggio at sib7@cornell.edu.
Meteorological Extremes

The following table lists the Meteorological Extremes (°F) at Brookhaven National Laboratory. The period covered is from 1949 to the present. [http://www.bnl.gov/weather](http://www.bnl.gov/weather)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Highest Temperature</td>
<td>100.5°F July 21 1991 &amp; July 22, 1957</td>
</tr>
<tr>
<td>Absolute Lowest Temperature</td>
<td>-23.0°F January 22, 1961</td>
</tr>
<tr>
<td>Average Yearly Temperature</td>
<td>50.39°F</td>
</tr>
<tr>
<td>Coldest Year</td>
<td>1967 (Avg. Temp. = 47.5°F)</td>
</tr>
<tr>
<td>Warmest Year</td>
<td>2012 (Avg. Temp. = 54.2°F)</td>
</tr>
<tr>
<td>Greatest Daily Temperature Range</td>
<td>56.5°F</td>
</tr>
<tr>
<td>Least Daily Temperature Range</td>
<td>0.5°F</td>
</tr>
<tr>
<td>Maximum Annual Degree Days</td>
<td>6753 for 1967</td>
</tr>
<tr>
<td>Maximum Monthly Degree Days</td>
<td>1414 in January 1977</td>
</tr>
<tr>
<td>Average Annual Precipitation</td>
<td>48.93&quot;</td>
</tr>
<tr>
<td>Maximum Annual Precipitation</td>
<td>68.66&quot; in 1989</td>
</tr>
<tr>
<td>Minimum Annual Precipitation</td>
<td>34.35&quot; in 1965</td>
</tr>
<tr>
<td>Maximum Monthly Precipitation</td>
<td>22.14&quot; in October 2005</td>
</tr>
<tr>
<td>Minimum Monthly Precipitation</td>
<td>Trace in June 1949</td>
</tr>
<tr>
<td>Maximum Daily Precipitation</td>
<td>9.02&quot; September 10 - 11, 1954 Hurricane Edna</td>
</tr>
<tr>
<td>Maximum Hourly Rainfall</td>
<td>2.10&quot; September 10 - 11, 1954 Hurricane Edna</td>
</tr>
<tr>
<td>Maximum Seasonal Snowfall</td>
<td>90.8&quot; 1995 - 96</td>
</tr>
<tr>
<td>Minimum Seasonal Snowfall</td>
<td>4.5&quot; 1997 - 98</td>
</tr>
<tr>
<td>Maximum Monthly Snowfall</td>
<td>35.8&quot; February 2013</td>
</tr>
<tr>
<td>Maximum Daily Snowfall</td>
<td>19.0&quot; February 1978</td>
</tr>
<tr>
<td>Maximum Snowfall, Single Storm</td>
<td>30.9&quot; February 2013</td>
</tr>
<tr>
<td>Longest Period Snow Cover</td>
<td>55 days (Dec. 26, 1947 - February 18, 1948)</td>
</tr>
<tr>
<td>Absolute First Day of Snowfall</td>
<td>October 17</td>
</tr>
<tr>
<td>Absolute Last Day of Snowfall</td>
<td>April 27</td>
</tr>
<tr>
<td>Peak Wind Speed</td>
<td>125 mph - August 31, 1954 Hurricane Carol</td>
</tr>
<tr>
<td>Lowest Barometric Pressure</td>
<td>28.375&quot; September 12, 1960 Hurricane Donna</td>
</tr>
</tbody>
</table>

Personal Protective Equipment - Gloves

Listed on the label of your pesticide in the Personal Protective Equipment (PPE) section, there should be a glove type or a category A-H. The label may provide several examples of glove materials which are resistant to that chemical. To find what types of gloves can be used with the pesticide, consult the chart on the next page. According to the Environmental Protection Agency’s Worker Protection Standard, only unlined gloves or gloves with separable liners may be used.

Not all gloves will give you the same level of protection. Some glove materials will last longer against certain types of pesticides and chemicals. They will be highly, moderately or slightly chemical resistant.

With highly chemical resistant gloves, you should clean or replace them at the end of each day’s work period. Rinse off all pesticides at rest breaks.

With moderately chemical resistant gloves, you may need to clean or replace them within an hour or two of contact.

With slightly chemical resistant gloves, you may need to clean or replace them within 10 minutes of contact.

Not chemical resistant. Do not wear this type of material as PPE when contact is possible.

The chart on the next page shows the information in an alternative grid format.

The chart on page 124 gives you a range of PPE materials from which to choose for each glove category that may be listed on your pesticide label. It also tells you how long you can expect the material to be resistant to the pesticide you are using. For example, the label might say: “If you want more options, follow the instructions for category F on an EPA chemical resistance selection chart.” This means you should select PPE made from barrier laminate, butyl, nitrile or Viton because they are highly chemical resistant to that pesticide.
## Requirements for Service Containers

Any person utilizing a service container containing a pesticide must comply with ECL 33-130(1), and must ensure that the container bears the following, or must directly affix to the container a label bearing:

1. The name and address of the manufacturer or registrant as it appears on the pesticide product label
2. The registered product name and the USEPA registration number
3. The maximum volume or weight of pesticide that the container can hold.

In addition, if the service container contains pesticides with any substance or substances in quantities highly toxic to humans, the service container must also bear:

1. The skull and crossbones
2. The word “POISON” prominently, in red, on a background of distinctly contrasting color
3. A statement of an antidote for the pesticide

As an alternative to both of these requirements, a person may directly and securely affix a copy of the registered product label of the pesticide to the container or application device and indicate maximum weight and volume.

Please also note that in addition to properly labeling service/alternative containers, certified applicators, certified technicians, and commercial pesticide apprentices must have a copy of the entire label in their custody during pesticide use.
NYS DEC Contact & Reporting Information

Following is some information useful to those involved in the application and sale of pesticides.

Albany Address
NYS DEC
Division of Materials Management
Bureau of Pesticides Management
625 Broadway, Albany, NY 12233-7254
518-402-8748 • 518-402-9024 fax
www.dec.ny.gov • dmm@dec.ny.gov

NYS DEC Region 1
Bureau of Pesticide Management
Bldg 40, SUNY Stony Brook, Stony Brook, NY 11790-2356
631-444-0350 • 631-444-0231 fax

Pesticide Reporting Law
DEC PRL webpage:
http://www.dec.ny.gov/chemical/27506.html

The Pesticide Sales and Use Database Group (PSUR) at Cornell University, the contractor who processes electronic submissions, will be providing technical support and is available to assist you in installing and using the electronic reporting options. For more information, please contact PSUR by:

Phone: 518-402-8748 • Email: prl@gw.dec.state.ny.us

Annual reports should be submitted to Pesticide Reporting Section, NYSDEC, PO Box 10699, Albany, NY 12201-5699 or submit your data electronically at www.nysprl.com.

Annual Reports for Commercial Applicators/Technicians/Businesses/Agencies
Forms required:
• Form 44-15-26 Applicator/Technician Pesticide Annual Report
• Form 44-15-26A List of Commercial Applicators (for businesses/agencies)
Deadline: February 1 of the year immediately following the reporting year

Forms can be obtained from the DEC or their website at http://www.dec.ny.gov/chemical/8879.html

Annual reports can be submitted electronically. For more information contact the DEC or visit http://www.nysprl.com

Annual Reports for Commercial Permittees
Forms required:
• Form 44-15-25 Restricted Use Pesticides Annual Report for Commercial Permittees (Including Importers, Manufacturers and Compounders). This form is required to report any sales of restricted use pesticides to New York purchasers.
• Form 44-15-27 Commercial Permittee Annual Report for Sales of Restricted Use Pesticides and General Use Agricultural Pesticides to Certified Private Applicators
Deadline: February 1 of the year immediately following the reporting year.

Forms can be obtained from the DEC

Annual reports can be submitted electronically. For more information contact the DEC or visit http://www.nysprl.com

Pesticide Business/Agency Registration
Official DEC info page:
http://www.dec.ny.gov/chemical/32631.html

Deadline: Renewal applications must be received at least 3 weeks before your registration expires.

Forms can be obtained from the DEC or their website at http://www.dec.ny.gov/docs/materials_minerals_pdf/busform.pdf

Requirements:
• Need a certified applicator or technician.
• Completed application.
• Valid insurance certificate for the business showing coverage currently in effect and showing the DEC Albany office as certificate holder. Insurance Company must be licensed or recognized by the NYS Insurance Department.
• All sole proprietorship applicants must be in good standing with child support, if applicable.

The Business Registration fee is $900 and the registration period is three years. Some Agencies may be fee exempt.

Mail form to: NYS DEC
Division of Solid & Hazardous Materials
Bureau of Pesticides Management
625 Broadway
Albany, NY 12233-7254
Commercial Permit Application

Required for distribution, sale, offer for sale, purchase for the purpose of resale or possession for the purpose of resale of a restricted use pesticide. Any person who engages in the sale of a restricted-use pesticide shall be certified by the Commissioner. Each business requiring a Commercial Permit must employ or retain under contract at least one applicator who is certified in NYS.


Forms can be obtained from the DEC or their website at http://www.dec.ny.gov/docs/materials_minerals_pdf/comform.pdf

The Commercial Permit Application fee is $600 for 2 years.

Mail form to: NYS DEC
Division of Materials Management
Bureau of Pesticides Management
625 Broadway
Albany, NY 12233-7254

Pesticides Registered in New York

Official DEC info page:
http://www.dec.ny.gov/chemical/8528.html

Pesticide products that are registered in New York State can be found on the NYS Pesticide Administration Database (NYSPAD). NYSPAD is an information portal that allows users to view pesticide product labels, search for re-certification courses and exams, and more.
- http://www.dec.ny.gov/nyspad/?0

Be sure the label on the product you are using matches the approved label in NYS.

NOTE: Some products registered in New York State are prohibited from use in Nassau and Suffolk Counties and will be indicated in the entries at each website. There are over 400 New York State registered products that are prohibited from use in Nassau and Suffolk County. Additional products have Long Island use limits. Applicators are advised that some products, while not on the prohibited list, can contain language relating to the products ability to leach and contaminate groundwater especially where the groundwater table is shallow and soils are permeable. Applicators should determine the appropriateness of their use under site-specific circumstances.

Extension Educators

Cornell Cooperative Extension of Suffolk County
Extension Education Center
423 Griffing Avenue, Suite 100, Riverhead, NY 11901-3071
Tel: 631-727-7850 • Fax: 631-852-3205
www.ccesuffolk.org
*denotes educators located at LIHREC

Nora Catlin – Agriculture Program Director
njc23@cornell.edu
Debbie Aller – Agriculture Stewardship / Soil Science
da352@cornell.edu
Marie Boulier – Structural Pests & Public Health
mbb38@cornell.edu
Marie Camenares – IPM Associate
mc429@cornell.edu
Nora Catlin – Floriculture
njc23@cornell.edu
Andrew DellaVilla - Agricultural Stewardship Technician
ad547@cornell.edu
Amanda Gardner* – Viticulture Associate
alg276@cornell.edu
Daniel Gilrein* – Entomology
dog1@cornell.edu
Kelly Jackson* - Entomology Associate
kaj99@cornell.edu
Sandra Menasha – Potato/Vegetable
srn45@cornell.edu
Alice Raimondo – Horticulture Consultant
aw242@cornell.edu
Andrew Senesac* – Weed Science
afs2@cornell.edu
Kyle Smith – Greenhouse Technician
ks2224@cornell.edu
Irene Tsontakis-Bradley* - Weed Science Associate
it21@cornell.edu
Shannon Veraldi – Agricultural Stewardship Technician
skm235@cornell.edu
Mina Vescera, Nursery / Landscape
mv365@cornell.edu
Sandra Vultaggio – Horticulture Consultant  
sib7@cornell.edu

Alice Wise* – Viticulture  
avw1@cornell.edu

Anastasia Yakaboski -- Potato/Vegetable Associate  
ay285@cornell.edu

Tamson Yeh – Turf / Pest Management  
tsy3@cornell.edu

Faruque Zaman* – Entomology Associate  
fz88@cornell.edu

Dominick Zeppetella - Agricultural Stewardship Technician  
djz45@cornell.edu

Roxanne Zimmer - Community Horticulture  
rz378@cornell.edu

Agriculture Administrative Assistants
Melissa Elkins – Agriculture Program  
me336@cornell.edu

Sarah Osborn – Agricultural Stewardship Program  
so348@cornell.edu

Cornell University’s Long Island Horticultural Research and Extension Center (LIHREC)
3059 Sound Avenue, Riverhead, NY 11901  
Tel: 631-727-3595 • Fax: 631-727-3611
www.LongIslandHort.cornell.edu

Mark Bridgen – Director, Floriculture and Micropropagation  
mpb27@cornell.edu

Margery Daughtrey – Plant Pathology / Ornamentals  
mld9@cornell.edu

Meg McGrath – Plant Pathology / Vegetables  
mtm3@cornell.edu

Cornell Cooperative Extension of Nassau County  
www.ccenassau.org

Horticulture Education Center  
832 Merrick Avenue, East Meadow, NY 11554  
Phone/Fax: 516-565-5265

Vincent Drzewucki - Resource Educator  
vad37@cornell.edu

Professional Horticulture Associations

American Hort (Formerly American Nursery & Landscape Association)
2130 Stella Court, Columbus, OH 43215  
Tel: Ohio 614-487-1117 • D.C. 202-789-2900  
carolb@AmericanHort.org • www.americanhort.org

American Horticultural Society
7931 East Boulevard Drive, Alexandria, VA 22308  
Tel: 703.768.5700 • Fax: 703.768.8700  
webmaster@ahsgardening.org • www.ahsgardening.org

American Society of Landscape Architects, New York Chapter
205 E 42nd St, 14th floor, New York, NY 10017  
Tel: 212-269-2984
secretary@aslany.org • www.aslany.org

Christmas Tree Farmers Association of New York
PO Box 705, Salem NY 12865  
Tel: (518) 854-7386
info@CTFANY.org • www.ctfany.org

Garden Centers of America
2873 Saber Drive, Clearwater, Florida 33759  
Tel: 800-721-0024
MemberServices@GardenCentersofAmerica.com  
www.gardencentersofamerica.org

Horticulture Research Institute
525 9th St. NW, Suite 800, Washington, DC 20004  
Tel: 202-789-2900
caigr@americanhort.org • www.hiresearch.org

International Plant Propagator’s Society (Eastern Region)
1700 North Parish Drive, Southold, NY 11971  
Tel: 1-631-765-9638
ippser@gmail.com • www.ena.ipps.org

International Society of Arboriculture
P.O. Box 3129 (Mailing address)  
2101 West Park Court  
Champaign, IL 61826  
Tel: 217-355-9411 • Fax: 1-217-355-9516
www.isa-arbor.com
Irrigation Association of New York
P.O. Box 237, Greenlawn, N.Y. 11740
Tel: 631-423-0429
www.iany.org

Long Island Arboricultural Association, Inc.
P.O. Box 540, Hampton Bays, NY 11941
Tel: 631-415-4315
info@longislandarborist.org ● www.longislandarborists.org

Long Island Farm Bureau
104 Edwards Avenue Suite 3, Calverton, NY 11913
Tel. 631-727-3777 ● Fax 631-727-3721
www.lifb.com

Long Island Flower Growers Association
P.O. Box 102, Jamesport, NY 11947
Tel: 631-886-2213
info@lifga.com ● www.grownonli.com/

Long Island Golf Course Superintendents Association
P.O. Box 84, Wading River, NY 11792
Tel: 631-886-2434 ● Fax: 631-886-2434
ligcsa@gmail.com ● www.ligcsa.com

Long Island Native Plant Initiative, Inc. (LINPI)
P.O. Box 1279, Hampton Bays, NY 11946
Tel: 631-560-9945
www.linpi.org

Long Island Invasive Species Management Area (LIISMA)
1725 Brentwood Road Building 2, Brentwood, NY 11717
Tel: 631-560-9945
liismaprism@gmail.com ● www.liisma.org/

Long Island Nursery & Landscape Association
136 Everett Rd, Albany, NY 12205
Tel: 516-249-0545 ● Fax: 518-427-9495
info@linla.org ● www.linla.org

Nassau/Suffolk Landscape Grounds Association
P.O. Box 489, Brightwaters, NY 11718
Tel: 631-655-2250
nslla2@optonline.net ● www.nslga.org

National Association of Landscape Professionals
12500 Fair Lakes Circle, Suite 200, Fairfax, VA 22033
Tel: 800-395-2522 ● Fax: 703-322-2066
info@landscapeprofessionals.org
www.landscapeprofessionals.org

NYS Arborists ISA Chapter
136 Everett Rd, Albany, NY 11205
Tel: 518-694-5507 ● Fax: 518-935-9436
info@nysarborists.com ● www.nysarborists.com

NYS Nursery and Landscape Association
136 Everett Rd, Albany, NY 11205
Tel: 518-694-4430 or 518-694-4431
info@nysnla.com ● www.nysnla.com

NYS Turfgrass Association
P.O. Box 612, Latham, NY 12110
Tel: 518-783-1229 ● Fax: 518-783-1258
nysta@nysta.org ● www.nysta.org

Perennial Plant Association
P.O Box 6682, Raleigh, NC 27628
Tel: 888-440-3122
info@perennialplant.org ● www.perennialplant.org

Professional Certified Applicators of Long Island
P.O. Box 1106, Sound Beach, NY 11789
Tel: 631-744-0634
pcaofli@gmail.com ● www.pcaofli.com

Quality Parks
Port Jefferson, NY 11777
Tel: 631-255-6512
mblock@qualityparks.org ● www.qualityparks.org

Tree Care Industry Association
136 Harvey Rd, Suite 101, Londonberry, NH 03053
Tel: 800-733-2622 ● Fax: 603-314-5386
www.tcia.org
Colleges/Schools on Long Island with Horticulture Programs

Farmingdale State College
Department of Ornamental Horticulture
2350 Broadhollow Road
Thompson Hall
Farmingdale, New York 11735
Tel: 631-420-2113
jonathan.lehrer@farmingdale.edu
www.farmingdale.edu/horticulture

Wilson Tech
Adult Education
17 Westminster Ave.
Dix Hills, NY 11746
Tel: 631-667-6000
www.wilsontech.org

Gardens and Arboretums in the Long Island/New York City Area

Bailey Arboretum
Bayville Road and Feeks Lane, Lattington, NY 11560
516-571-8020 • www.baileyarboretum.org

Bayard Cutting Arboretum
440 Montauk Hwy., Great River, NY 11739
631-581-1002
www.bayardcuttingarboretum.com

Bridge Gardens
36 Mitchell Lane, Bridgehampton, NY 11932
631-283-3195
www.peconiclandtrust.org/bridge_gardens.html

Brooklyn Botanic Garden
1000 Washington Avenue, Brooklyn, NY 11225
718-623-7200 • www.bbg.org

Clark Botanic Garden
193 I.U. Willets Road, Albertson, NY 11507
516-484-8602
www.clarkbotanic.org

Conservatory Garden
Central Park
105th Street and Fifth Avenue, New York, NY 10029
212-360-2766
www.centralpark.com

Farmingdale State College Ornamental Horticulture Gardens
2350 Broadhollow Rd, Farmingdale, NY 11735
631-420-2113
www.farmingdale.edu/horticulture

The Garden City Bird Sanctuary & Arboretum
Garden City, NY 11530 (opposite 181 Tanners Pond Rd.)
Tel: 516-326-1720
www.gcbirdsanctuary.org

The Hofstra University Arboretum
129 Hofstra University, Hempstead, NY 11549
516-463-6623
www.hofstra.edu/community/Arbor/index.html

The John P. Humes Japanese Stroll Garden
347 Oyster Bay Rd, Mill Neck, NY 11765
516-676-4486
www.gardenconservancy.org/preservation/preservation-portfolio/humes-japanese-stroll-garden
Joseph Lloyd Manor House  
Society for Preservation of Long Island Antiquities  
Lloyd Lane and Lloyd Harbor Road, Lloyd Harbor, NY  11743  
631-692-4664 • www.splia.org

LongHouse Reserve  
133 Hands Creek Rd., East Hampton, NY  11937  
631-329-3568 • www.longhouse.org

The Madoo Conservancy  
618 Sagg Main Street, Sagaponack, NY  11962  
631-537-8200 • www.madoo.org

Nassau County Museum of Art  
One Museum Drive at Northern Blvd., Roslyn Harbor, NY  11576  
516-484-9337  
www.nassauymuseum.org

The NY Botanical Garden  
200th St. and Kazimiroff Blvd., Bronx, NY  10458  
718-817-8700 • www.nybg.org

Old Westbury Gardens  
71 Old Westbury Road, Old Westbury, NY  11568  
516-333-0048  
www.oldwestburygardens.org

Planting Fields Arboretum  
1395 Planting Fields Road  
PO Box 58, Oyster Bay, NY 11771  
516-922-9200  
www.plantingfields.org

Queens Botanical Garden  
43-50 Main Street, Flushing, NY  11355  
718-886-3800  
www.queensbotanical.org

Thompson House Herb Garden  
Preservation Long Island  
91 North Country Road, Setauket, NY  11733  
631-692-4664 • www.splia.org

Water Mill Museum Herb Garden  
41 Old Mill Road, Water Mill, NY  11976  
631-726-4625  
www.watermillmuseum.org

Wave Hill  
West 249 Street and Independence Avenue, Bronx, NY  10471  
718-549-3200  
Info@wavehill.org • www.wavehill.org

Agency Contact Information:

NYS Department of Agriculture and Markets  
Division of Plant Industry  
4 Stewart Avenue  
Westhampton Beach, NY  11978  
Tel: (631) 288-1751

General Information  
Tel: (800) 554-4501  
www.agriculture.ny.gov/PI/PIHome.html

New York State Department of Environmental Conservation  
625 Broadway  
Albany, NY 12233  
www.dec.ny.gov
  • Chemical Bulk Storage Helpline 518-402-9543  
  • Hazardous Waste Generators, Small Quantity Generators, and Household Hazardous Wastes (800) 462-6553  
  8:30 AM - 4:45 PM and an after-hours answering machine  
  • Inspector General Hotline (800) 367-4448  
  • Poachers and Polluters (800) TIPP-DEC  
  • Regulatory Fee Program (800) 225-2566  
    9 AM - 12 PM and 1:30 PM - 4 PM  
  • Spills Hotline (800) 457-7362  
    or (518) 457-7362, twenty-four-hour service

New York State Department of Labor  
State Campus, Building 12  
Albany, NY 12240  
info.nysdol@labor.ny.gov  
www.labor.ny.gov

Division of Labor Standards  
400 Oak St, Suite 101  
Garden City, NY 11530  
Tel: (516) 794-8195

Suffolk County Agriculture and Farmland Protection Board Ag District Review  
Right-to-Farm Issues  
C/O Cornell University Cooperative Extension  
423 Griffing Avenue  
Riverhead, NY  11901  
Tel: (631) 727-7850
Suffolk County Department of Health Services
3500 Sunrise Highway, Ste 124
P.O. Box 9006
Great River, NY 11739
Tel: (631) 853-3000
www.suffolkcountyny.gov/departments/healthservices.aspx

Suffolk County Department of Health Services
Migrant Housing General Sanitation
Division of Public Health / Bureau of Public Health Protection
360 Yaphank Avenue, Suite 2A
Yaphank, NY 11980
Tel: (631) 852-5998

Suffolk County Farmland Select Committee
Purchase of Development Rights
H. Lee Dennison Building 4th Floor
100 Veterans Memorial Highway
Hauppauge, NY 11788
Tel: (631) 853-5111

Suffolk County Planning Department
H. Lee Dennison Building 4th Floor
100 Veterans Memorial Highway
Hauppauge, New York 11788
Tel: (631) 853-5191

Suffolk County Soil and Water Conservation District
423 Griffing Ave
Riverhead, NY 11901
Tel: (631) 852-3285

USDA/APHIS/PPQ
Animal and Plant Health Inspection Service
4 Stewart Avenue
Westhampton Beach, NY 11978
Tel: (631) 288-4191
www.aphis.usda.gov

USDA/Natural Resources Conservation Service
423 Griffing Ave.
Riverhead, NY 11901
Tel: (631) 727-2315
www.ny.nrcs.usda.gov

US Department of Labor
Wage and Hour Division
1400 Old Country Road, Suite 410
Westbury, NY 11590
Tel: (516) 338-1890
www.dol.gov

US Department of Transportation
1200 New Jersey Avenue, SE
Washington D.C. 20590
Tel: (202) 366-4000
www.dot.gov

DeLalio Sod Farms LLC

www.delaliosod.com

MAIN OFFICE: 631-242-3700
EASTERN SUFFOLK: 631-727-2002

652 Deer Park Ave, Dix Hills NY 11746
422 Edwards Ave, Calverton, NY 11933

Wholesale
SOD, SEED & FERTILIZER
Quality Products at Competitive Prices

DURA SOD
Bluegrass Blends * Blue/Fescue Mixtures *Blue/Tall Fescue *Mulch*
Screened Top Soil *Custom Seed Mixing * Hydro seeding materials

Exclusive DeLalio Sod Cooling System
Dependable cool supply to meet your needs during warm weather
Perennial Charm Nursery LLC

PO Box 61
278 Narrow Lane East
Sagaponack, NY 11962

Monday - Friday
7:30 am - 4 pm

Phone: (631) 537-0775
Fax: (631) 537-4597
percharm@optonline.net

Wholesale Only and not open to the General Public

Shrub, Perennial & Annual Growers

Established 1988
Thank you to our sponsors for making this informative and useful booklet possible.

Atlantic Nurseries Inc .......................... 80
CCE Suffolk Horticulture Diagnostic Lab ............. 6
Charlie & Sons Landscapes ........................ 24
DeL aio Sod Farms .............................. 138
DeLea Sod Farm .................................. 120
Farm Family Casualty Long Island Agency .......... 66
Fowler’s Garden Center ............................ 51
Glover Perennials .................................. 52
Half Hollow Nursery ............................... 58
Island Bio Greens .................................. 7
Long Island Nursery & Landscape Association .... 134
North Fork Boutique Gardens Inc .................... 16
North Fork Nursery ................................ 67
Perennial Charm Nursery LLC ..................... 140
Pinewood Perennial Gardens LLC ................... 115
Professional Tree Surgeons Supply Inc ............... 43
Warner Nursery .................................... 25