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BLUE BIRDS

If a poll was taken among New York residents, probably the most favored song bird would be the eastern bluebird. Of the many beautiful songbirds that grace our state, the bluebird probably has captured more interest than any other. Its distinctive appearance and relatively tame behavior have largely been responsible for its popularity. It is no wonder that the eastern bluebird is our official state bird.

Bluebirds can be found across most of New York State. They breed throughout the state, except in the high peaks area of the Adirondacks and the New York City Metropolitan area. Although most of New York's bluebirds migrate to the southeastern U.S., some remain here, particularly during mild winters.

The history of the fate of bluebird populations in New York is an interesting example of how human land use affects wildlife. When early settlers cleared the forests, they created tracts of open habitat, which bluebirds prefer. The population of bluebirds probably increased in many areas as a result. In the early 1900s, the eastern bluebird was common, nesting on farms, in town, and even in large cities.

Bluebirds can no longer be found in heavily populated urban and suburban areas. They are scarce even in some rural areas. Although precise data don't exist, some observers believe the bluebird population may have declined as much as 90% during the past 50 years.

The most critical factor in this decline was the loss of nest sites. Bluebirds are cavity nesters. They build their nests in holes in dead trees, fence posts, or in artificial nest boxes. They can't excavate their own holes, so they depend on woodpeckers, decay or humans to create them. Changes in land-use practices have resulted in fewer natural cavities. The small family farms of the early 1900s, with their small woodlots, treed hedgerows, and orchards, have been replaced by larger farming equipment. Dead trees that were once left standing in hedgerows are now removed. Metal fence posts have replaced wooden ones.

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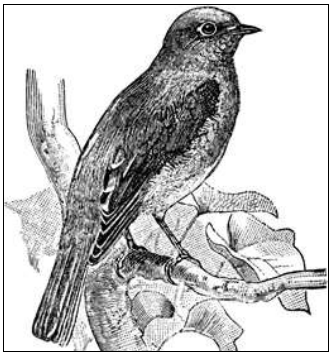

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The problem of limited nesting sites was compounded greatly by the introduction of the house sparrow and the European starling in the late 1800s. Both of these non-native birds compete with bluebirds for nest sites. The house sparrow is particularly troublesome because it is non migratory and claims nesting cavities before bluebirds return in the spring. Both the house sparrow and European starling are very aggressive. If either of these aliens finds a cavity being used by bluebirds, they can evict the bluebirds by harassing them, sometimes breaking eggs or pecking the young to death.

The increased use of firewood that has occurred since the late 1970s has also affected the availability of nest cavities. Often targeted by firewood cutters. Those along the edges of woodlots and in hedgerows typically have the best natural cavities. Snags (standing dead trees) are often targeted by firewood cutters. Those along the edges of woodlots and in hedgerows typically have the best natural cavities for bluebird nests. Unfortunately, they are also the most accessible for firewood.

Predators are an important cause of nest failure among bluebirds. Besides the birds mentioned earlier, raccoons, opossums, red squirrels and several species of snakes also consume bluebird eggs.

Despite the problem faced by blue birds, there is much that can be done by you and your family to attract them to your home. You can help maintain bluebirds in your area by building artificial nest boxes and by establishing plantings that provide food for these birds. By exerting just a little effort, you can help ensure that this attractive and interesting member of New York's wildlife will continue to thrill you and your family each spring.

Some vital statistics on the Eastern Bluebird:

Size: Total length: 6.0-7.5 inch

Wingspan: 11.5-13.2 inch

Adult weight: 1.0-1.25 oz.

Color: Back, tail and wings of the male bluebird are bright blue. Throat, breast, and flanks are reddish brown. The male's belly is white and its yes are dark brown. Females have a white or pale rust-colored throat, pale rust-colored breast and flanks, and a white belly.

Food: Wild berries (honeysuckle, cherry, mulberry, staghorn, sumac, Virginia creeper, etc.) and ground-dwelling insects (grasshoppers, crickets, beetles, etc.)

Habitat: Open land with trees, shrubs, fences or wires that bluebirds use as lookout perches to locate ground-dwelling insects. Preferred habitat also has areas with sparse ground cover and suitable nesting cavities.

Breeding: Clutch of 4-5 eggs normal (0.8 in. long by 0.6 in. wide); incubation 12 days; young hatch in early May.

Source: Wildlife Notebook by Daniel J. Decker; A Cornell Cooperative Extension Publication

GLADIOLUS

The gladiolus is an easy-to-grow flower, especially valued for use in floral arrangements. Gladioli produce tall spikes of large blossoms, in a rainbow of colors. Only clear, true blue is missing; white, pink, red, purple, yellow, orange, salmon, and even green gladioli are available, along with many bi-colors.

"Glads" grow from **corms** (bulb-like structures) that are not winter-hardy. They must either be dug in September and stored until planting time the following May, or replaced annually. Some gladiolus experts recommend treating them as annuals because you are more likely to get large, healthy blooms each year that way, and you don't have to fuss with storing them.

Planting Layout - If you are growing glads primarily for cut flowers, you may want to plant them in rows, as you would vegetables. It is easier to prepare the area, stake and tend the plants, and harvest flower stalks when they grow in neat rows.

Glads can also be used to provide color in annual beds and borders, though they are very stiff and upright and a bit awkward to work with. Plant gladioli in groups of seven or more corms of the same cultivar (cultivated variety) for best effect.

Site - Choose a location in full sunlight. Although newly purchased corms are ready to bloom and should flower even in the shade, flowers will be larger and brighter and stalks will be sturdier when they're planted in sun. The glads will also be able to store more energy for the following year's bloom, which is critical if you plan to re-use your corms.

Well-drained soil is essential for successful gladiolus growing. If your soil is heavy or tends to be wet, create raised beds for your glads (and most other annuals, perennials, and bulbs). Whether or not you garden in raised beds, loosen the soil to a depth of ten or 12 inches. Fertilize, if necessary, according to recommendations based on a soil test.

Planting - Start planting in mid-May, then again every two weeks through mid-June. This schedule will keep the flowers coming form July through August. You could also choose early, mid-season, and late cultivars, plant them all in May, and still enjoy continuous bloom for much of the summer. The final strategy to extend bloom time would be to plant different sized corms. Larger corms bloom somewhat earlier than smaller corms of the same variety.

Corms smaller than ¾ inch in diameter may not produce flowers. To ensure large-sized blooms, plant corms that are 1¼ inch or larger in diameter. Choose corms that are relatively tall and plump, shaped like a chocolate kiss, rather than wide and flat. Thick corms produce good quality flowers.

Plant corms with the pointed side up, about four times as deep as their diameter. Measure the distance to the bottom of the planting hole, then plant the corm. (A one-inch corm would be planted four inches deep, a 1¼-inch corm, five inches deep, and so on.) Space the corms six to eight inches apart.

Label your corms and put in stakes or other support structures when you plant them. Gladiolus flower spikes blow over easily in the wind. If you stake them first thing, you can avoid the likelihood of damaging their roots with the stakes.

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Summer Care - Apply a layer of mulch such as straw, grass clippings, or pine needles to help keep weeds down. Pull or hoe any weeds that come up. Mulch will also help conserve moisture in the soil, cutting down on surface evaporation. Adequate rainfall or watering is still needed for best quality blooms, so be sure your glads receive an inch or water each week, if possible.

Cutting for Bouquets - Bring a sharp knife or florist's shears and a tall bucket of lukewarm water to the garden with you. Cut the flower spikes first thing in the morning or at night, not during the heat of day. Cut spikes with only one, two, or possibly three flowers open; the rest will open in order, up the spike. Allow at least four leaves to remain on the plant if you wish to re-use the corms.

Cut diagonally through the stalk and place it in the lukewarm water immediately. Once you've collected all the glads you want cut, put the bucket in a cool, dark place for a few hours so the blooms "harden off". Use floral preservative in the vase water before arranging the glads. As lower flowers fade, nip them off. Cut about an inch of stem off the bottom of each spike every few days.

Storage - Dig gladiolus corms once the foliage has been killed by frost. Shake off excess soil and sort the corms by cultivar. Cut the stem off just above each corm. "Cure" corms for about three weeks in a warm, dry, airy place. At this point, the corms you planted in spring will easily break off the bottoms of the new corms that developed over the summer growing season. Discard the old, spent corms and save the new ones. Leave their husks intact, and treat them for insects if they appear infested. (See "pests" following.)

Place the new corms in paper bags, cloth sacks, or nylon pantyhose legs. Store them in a well-ventilated place that's dark, dry, and cool. Ideal storage temperatures range from 35° to 45° F; the cooler the better, as long as they are not allowed to freeze.

When you dig the corms, you'll notice a number of miniature corms attached to the main one. These are called **cormels**. They should be able to bloom in two or three years if you save them and replant them each spring. Save the largest ones, at least ½ inch in diameter. Plan to plant them about 1½ to 2 inches deep.

Pests - Glads are susceptible to a number of diseases and are prey to insects, as well. To minimize the chance of disease or insect problems, always start with sound corms. Toss any that look odd or feel soft or crumbly. Practice "crop rotation" if possible, planting glads in different locations from one year to the next. If plants are yellow or stunted assume the worst--virus infection, for which there is no cure--and destroy them.

If the leaves appear streaky, or if flowers fail to open or are misshapen or streaked and discolored, the problem is probably thrips. Thrips are tiny insects that overwinter on stored corms. They use rasping mouthparts to feed on gladiolus foliage and flowers, often while the flowers are still in the bud. Spray the plants when you first see damage, using acephate (Orthene and others) or carbaryl (Sevin). Repeat according to label directions if damage continues.

The *best* way to control thrips is to treat the corms as they go into storage. There are several methods you can try, including keeping the corms cool enough. At temperatures between 35° and 40° F, thrips will not survive.

- Try dusting corms with carbaryl, shaking them in a bag with a small amount of the dust (just 2 teaspoons per hundred corms).

or

- Soak corms for six hours in a mixture of 4 teaspoons Lysol ® or other disinfectant and one gallon of water. Allow corms to dry before storing them.

or

- Dip corms in very hot--not boiling--water (160°F) for two minutes. Allow corms to dry before storing them.

or

- Store the corms with naphthalene flakes or balls (mothballs). Use one ounce for one hundred corms and enclose them in a paper or cloth bag.

Source: http://www.extension.umn.edu/yardandgarden/ygbriefs/h149gladiolus.html

PRUNING SHRUBS

A GUIDE TO SUCCESSFUL PRUNING

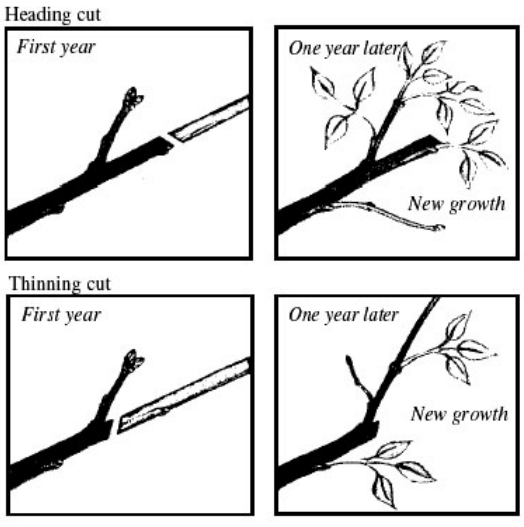
Shrubs, like most plants, come in all many of shapes and sizes. Depending on a shrub's individual growth habit, and the tastes of the individual gardener pruning will be approached in a varied manner.

Growth Habit - Understanding the natural "habit" or shape of shrubs will help you determine how to prune them. All shoots grow outward from their tips. Whenever tips are removed, lower buds are stimulated to grow. Buds are located at nodes, where leaves are attached to twigs and branches. Each node produces from one to three buds, depending on shrub species.

Shrubs have mounding, cane, or tree-like growth habits. Those with mounding habits, such as evergreen azalea and spirea, generally have soft, flexible stems, small leaves, and are often used in mass plantings.

Shrubs with cane habits include forsythia and nandina. These shrubs spread by sending up erect new branches, called canes, from their base.

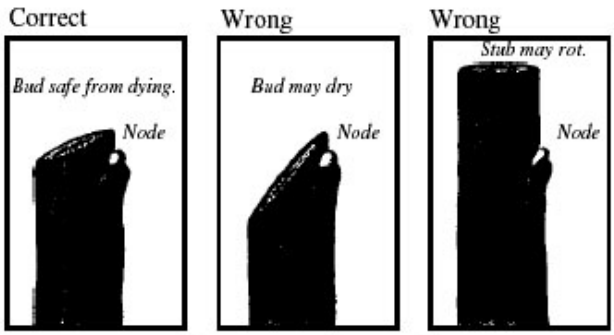
Tree-like shrubs have woodier, finely divided branches. Witch hazel and rhododendron are examples of shrubs with tree-like habits.



Heading and thinning cuts have different effects on subsequent growth.

How to Prune - There are two basic types of pruning cuts: heading cuts, and thinning cuts. Heading cuts stimulate growth of buds closest to the wound. The direction in which the top remaining bud is pointing will determine the direction of new growth. Make heading cuts selectively to reduce shrub height and retain natural form. Non-selective heading cuts made indiscriminately will stimulate rapid re-growth from buds below the cut. These vigorous shoots are unattractive and make shrubs bushier, but not smaller. Non-selective heading cuts are only justifiable when using hedge clippers on a hedge or topiaried shrub.

Thinning cuts remove branches at their points of origin or attachment. Used in moderation, thinning cuts reduce shrub density without stimulating re-growth.



Proper pruning angle

Make pruning cuts correctly. For heading cuts, prune 1/4 inch above the bud, sloping down and away from it. Avoid cutting too close, or steep, or the bud may die. When pruning above a node with two or more buds, remove the inward-facing ones. Make thinning cuts just above parent or side branches and roughly parallel to them.

Don't coat pruning cuts on shrubs with paint or wound dressing. These materials won't prevent decay or promote wound closure.

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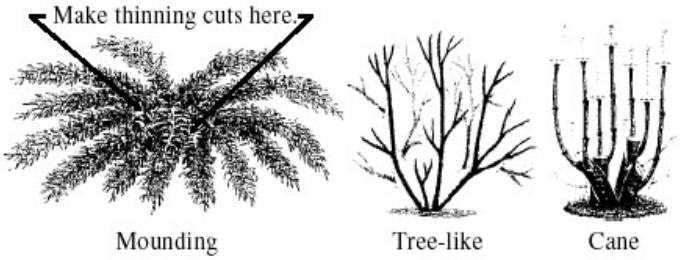
Maintenance Pruning - Deciduous shrubs require maintenance pruning to keep them healthy and in scale with their surroundings. Maintenance pruning practices should begin at the time of planting, or after rejuvenation of older shrubs.

Always remove dead, diseased, or broken branches promptly. When pruning dead or diseased branches, make thinning cuts into healthy wood, well below the affected area. Disinfect tools between each cut with products such as "Lysol," "Listerine," or rubbing alcohol. Tests have shown that "Pine-Sol" and household bleach are highly corrosive to metal tools.

To reduce the height of shrubs with a cane habit, first remove the tallest canes by cutting or sawing them out near ground level. Then, thin out any canes crowding the center, as well as those growing in an unwanted or unruly direction.

For height maintenance of mounding-type shrubs, prune only the longest branches. Make thinning cuts well inside the shrub mass where they won't be visible. This method reduces mounding shrubs by up to one-third their size without sacrificing their shape.



Shrubs with a tree-like habit are the most difficult to shorten. After removing any rubbing branches, prune to open up the center of the shrub. Keep the crown open and maximize light penetration by careful use of thinning cuts. Prune branches that touch the ground and suckers originating from the roots. Wait until the very end of the job to make any heading cuts. Tree-like shrubs can usually tolerate removal of one-eighth to one-fourth of their branches.

Rejuvenation Pruning - Older shrubs often grow out of proportion with their surroundings, and may have large amounts of unproductive wood. Two techniques are used to restore old shrubs, provided they still have sufficient vigor and are growing in a favorable location. Keep the following in mind with rejuvenation pruning:

1) Select an appropriate species. Not all shrubs respond well to drastic pruning.

2) Observe proper timing. The preferred time for renovative pruning is just before bud break in early spring.

3) Give extra care to heavily pruned shrubs. Fertilization, watering, and pest control will be critical factors.

4) Consider the shrub's new appearance. What will be the immediate impact on the landscape?

The first technique involves complete removal of the entire plant 6-10 inches above the ground. Use heavy lopping shears and a pruning saw. Remove half of the new canes that develop by mid- summer, and head back some of the remaining canes. When using a heading cut, be sure to prune to outward-pointing buds so that the inner portion does not become too dense. Shrubs that tolerate extensive rejuvenation are: abelia, dogwood, honeysuckle, hydrangea, lilac, mallow, Rose-of-Sharon, spirea, and St. John's wort (hypericum).

Extensive rejuvenation

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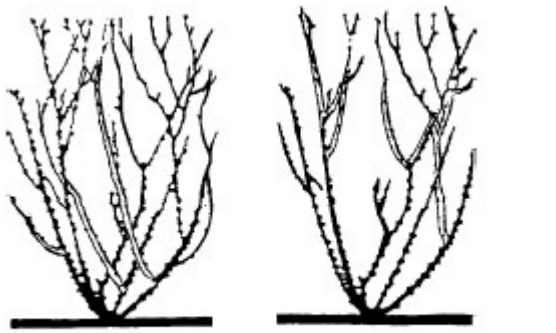
The second technique for shrub rejuvenation removes growth more gradually. The first year, remove one-third of the oldest, unproductive branches. The next year, take one-half of the old, lingering stems. Finally, in the third year, prune out the remainder of the old branches. New, productive stems should quickly replace the old wood. This method takes longer to complete, but the shrub stays more attractive throughout the rejuvenation period.



Unpruned shrub Gradual rejuvenation

When to Prune - Pruning at different seasons triggers different responses. Late winter or early spring, before bud break, is usually the best time to prune many species because new tissue forms rapidly. However, pruning should be delayed for most spring-blooming shrubs until immediately after flowering to avoid reducing the floral display.

Summer pruning tends to suppress growth of both suckers and foliage. Summer-blooming shrubs should be pruned in early spring prior to bud set, or in summer immediately following flowering.

Late summer or early fall pruning causes vigorous re-growth, which in some cases may not harden off by winter, leading to possible cold damage. Whenever unexpected damage from vandalism or bad weather occurs, prune at once.

Source: Published by Virginia Cooperative Extension - Authors Susan C. French, Extension Technician and Bonnie Lee Appleton, Extension Horticulturist, Virginia Tech

PROTECTING EVERGREENS IN WINTER

Young evergreens growing in the open can be protected from snow and ice damage by tying together upper branches that might spread and break during periods of heavy snow buildup or freezing rain. Wood a-frame covers provide extra protection for plants from snow sliding from buildings and from ice buildup from water dripping from eaves.

If evergreens are exposed to severe wind or road salt spray, a staked burlap windbreak will provide further protection. Remember to continue watering evergreens through the fall if rainfall is below normal to avoid winter stress and injury. A woodchip or compost mulch will provide further protection.

Secure the tender bark of newly planted trees and shrubs from foraging deer and mice by wrapping them with hardware sloth screening and keeping the area around the trees free of grass and weeds.

Source: Protecting Evergreens in Winter, Jeanne Mackin, CCE Living Herkimer/Otsego County 9/1997

HEALTHY PLANTS NEED THE PROPER CONTAINER

Almost any container can be used for potting plants, as long as drainage holes are provided. Plant roots will suffocate if the soil surrounding them is thoroughly filled with water for extended periods. Once roots start to rot, the top of the plant may wilt and appear as if additional water is needed. Theses symptoms can mislead the plant owner into applying more water, which just aggravates the problem.

A plant in an unglazed clay pot is less likely to suffer from too much water than a plant in a glass or plastic container, because water can move out and air can move into the soil through the clay. But even clay pots should have drainage holes in the bottom.

Unglazed clay containers do tend to accumulate unsightly salt residue as water evaporates from the surface. This residue is generally not harmful to the plants, unless it accumulate in the soil.

Plastic containers are generally lighter in weight and do not tend to accumulate as much salt residue. However, plastic containers can be too light so that large plants easily tip over.

Decorative containers often do not allow excess water to drain away from plants. To use such a container, use the double-potting method. Pot your plant in a properly sized, unglazed clay pot with drainage holes, and then slip the pot into the decorative container. Discard the drainage after watering.

Take care to select the correct-sized pot. A plant in a pot that is too small does not have room to grow and dries out quickly. One that is in a oversized pot may suffer room too much water and too little air.

To determine if a plants needs to be repotted, examine the root system by removing the plant from the container. If only a few roots are visible from the soil ball, the plant does not need repotting. If many roots are visible, it is time to repot. Use the next size larger.

GROWING TIME FOR TRANSPLANTS

Vegetable	Indoor Grow Time Needed	Start Seed Indoors	Transplant Seedlings Outdoors
Onions	10-12 weeks	Early March	Late April-early May
Broccoli	5-6 weeks	Late March-early April	Late April-early May
Brussels sprouts	5-6 weeks	Late March-early April	Late April-early May
Cabbage	5-6 weeks	Late March-early April	Late April-early May
Cauliflower	5-6 weeks	Late March-early April	Late April-early May
Lettuce	4-5 weeks	Early April	Late April-early May
Cucumbers	2-3 weeks	Early mid-May	Late May-early June
Melons	2-3 weeks	Early mid-May	Late May-early June
Pumpkins	2-3 weeks	Early mid-May	Late May-early June
Squash, summer & winter	2-3 weeks	Early mid-May	Late May-early June
Tomatoes	5-6 weeks	Late March-early April	Late May-early June
Peppers	5-6 weeks	Late March-early April	Late May-early June
Eggplant	5-6 weeks	Late March-early April	Late May-early June

Source: B. Rosie Lerner, Extension Consumer Horticulture Specialist, Purdue University, as appearing in Chautauqua Living, March 2005, Volume 29, Issue 3

HORTICULTURE OILS FOR INSECT AND MITE CONTROL

Oil has been used to kill insects and mites since the 1700's. However, until oil refining techniques were developed which freed petroleum oils of unsaturated hydrocarbons, acids, and highly volatile elements, the use of oil often killed the plants as well as the target pest.

Oils are petroleum or plant based hydrocarbon chains that have insecticidal/miticidal activity. Some types of oil used for pest control are petroleum summer or horticultural oil, petroleum dormant oil, and citrus oil.

Types of Oils

Petroleum summer or horticultural oils are lighter weight oils applied during the active growth of a plant, when green plant foliage is present.

Dormant oils are usually defined as heavier weight oils applied in spring prior to bud break or in the fall after plants enter dormancy. This lessens the chance of phytotoxicity. To be sure of dormancy wait until after leaf drop and several frosts. (Better pest control is achieved by waiting until late winter/early spring. In the fall and winter when insects are in hibernation, the metabolic rate is very low, as is the demand for oxygen. Oils evaporate before the insects are killed and poor control is the result).

Citrus oils are usually added to other pesticide formulations such as soaps or botanical pesticides.

Mode of Action

Oil acts as a contact insecticide until it evaporates, physically preventing respiration. In other words, suffocating the pests it covers as well as its eggs. The oil must remain long enough to suffocate the insect but not the plant. Oil also interferes with cell metabolism in soft-bodied insects like aphids, scale, lace bug, adelgids, mealybugs, whiteflies and some caterpillars and disrupts feeding of some leafhoppers and aphids on oil covered surfaces.

Keep in mind

The target pest must be present and coverage must be thorough. Some plants are sensitive to oils. Plants should not be treated when wilted or otherwise stressed. Temperatures must be between 40-90° F and humidity must be below 90%. Plants must be must be dry and rain must not be a possibility. (The oil needs to evaporate). Always follow the label directions for the product you are using.

Know the type of pest and its life cycle. Oyster shell scale and pine needle scale overwinter as eggs that generally are stacked on top of each other so the dormant oil may not contact the bottom layer. Additional insecticide applications after egg hatch are generally required. Cottony maple scale and euonymus scale overwinter as second instars or mature females and are relatively easy to control with dormant oils. The two-spotted spider mite overwinters in plant debris, mulch or other protected places-not on the plant. The spruce spider mite overwinters as eggs on the plants such as arborvitae, juniper, hemlock and pine. Oil sprays are applied to plants, therefore dormant oil will control the spruce spider mite, not the two-spotted mite.

Drawbacks

Horticulture oils are nonselective, killing beneficial insects as well as pests. Horticulture oils are toxic to fish. Oils are phytotoxic to some plants such as beeches, Black Walnut, maples, hickories, Cryptomeria, Smoketree, many azaleas, Japanese Holly, Redbud, Blue Spruce, Douglas Fir, and Photinia.

Sources: Using Dormant Oils to Manage Pests, Raymond Cloyd, University of Illinois Extension Home, Yard & Garden Pest Newsletter, October 24, 2001.

Bulletin 504, Insect and Mite Control on Woody Omamentals and Herbaceous Perennials, Ohio State University Extension. Home Grounds Fact Sheet, Horticultural Oils, CCE Nassau County, April 2000.

LAYERING BULBS

GETTING THE MOST BLOOM IN A SMALL GARDEN

Many of us think of spring tulips and daffodils when we talk about bulbs but there are different types that bloom for most of the summer. The gardener with limited space can take advantage of the special attributes of bulbs that require little room for root space, take up little space above ground as they mostly grow straight up rather than spread sideways and have foliage that dies back after blooming. Layering is the perfect way to maximize the flowering potential of a small garden. In a hole as little as 18" wide by 12"-14" deep, you can get a wonderful display of blooms from early spring until well into August.

Start by choosing bulbs carefully, the bigger the bulb the larger the bloom is a good rule of thumb when purchasing bulbs. There are basically four main "layers" of bulbs that work particularly well for this method of planting:

- Lillium (including the Asiatics, Trumpets and Orientals)
- Narcissi and Allium
- Tulips
- Muscari, Scilla, Iris reticulata, Crocus (the smallest, earliest blooming bulbs).

Any layer can be left out and the scheme still works quite well. Larger areas can also be planted using this method of layering types of bulbs. Within a layer you can vary the bulbs, putting 2-3 Asiatic lilies with a couple of Oriental ones, thus extending the final blooming time. Early and late blooming tulips also work well this way. It is recommended that you choose one type of early bloomer and one late one, rather than mixing too many variations.

To determine quantities to buy there are a few points to consider. The more intensely you plant, the more blooms you will have next spring. However, bulbs like narcissi will form offsets and will need dividing sooner if planted extremely close together. In a hole about 18" wide, about 4-5 lilies, 3-5 daffodils or 2-3 alliums (or a combination of the two), 5-7 tulips, and 20 or so small bulbs would be adequate. Again, size of the bulbs comes into play here as daffodils that are top size can be very large and can have so many offsets that it would be difficult fitting 5 in a hole this size.

There are two points about color selection worth mentioning. First of all, working with an organized color scheme for bulbs blooming at the same time helps bring continuity to a small garden where lots of different colors can make the eye jump around and give a chaotic feeling to the space. On the other hand, bear in mind that different bulbs will be in bloom at different times so that the bright cheery yellow tulips in May will never see the deep pink Oriental lilies in August.

The first step in the garden is to find a space about 16-18" wide. Often just such a bare spot is evident between perennials during the summer. Come bulb planting season, though, the flower garden can look pretty barren and it can be hard to recall where the perennials of summer were once in full bloom. A little pre-planning can help in this situation. One gardener we know, surveys her garden throughout the summer and when she sees a "hole" in the bed, she puts in a marker stick to remind herself that this is where she wants to layer-up her bulbs. Since the goal is to have bulbs in bloom from the first crocus of spring through June allium and August oriental lilies, the spot really does have to be empty of other plants to begin with.

- **Step 1** Dig a deep hole at least 12" to 14" deep and about 16 to 18" wide. This can, of course, vary according to the space you are trying to fill.

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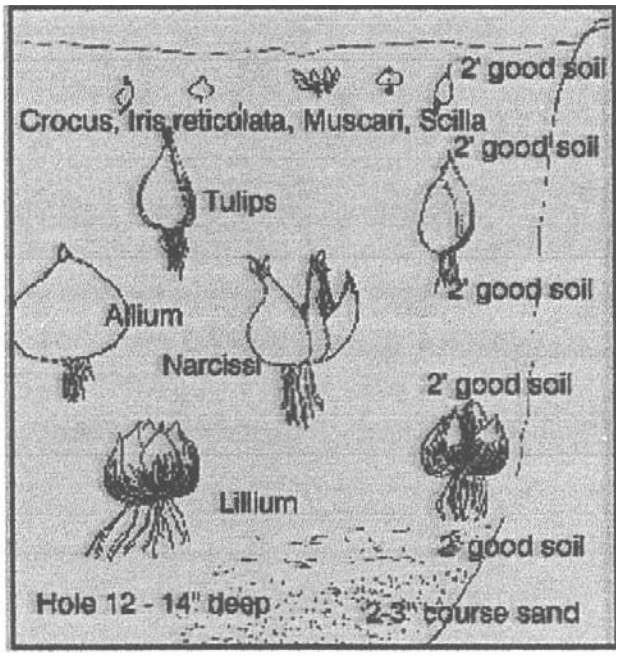
- **Step 2** Remove the soil and mix it with a good quantity of compost (a shovelful or two) and a couple handfuls of a bulb booster. Set soil mixture aside.
- **Step 3** In the bottom of the hole, place about 2-3" of course sand. This will provide good drainage for the bulbs.
- **Step 4** Next fill in about 2-3" of the soil mixture.
- **Step 5** Now you can start to plant. Lilies go in the deepest. You might fit 4-6 or even more in the hole, depending on their size and that of the hole. They bloom last, from late June for the Asiatics, July for the trumpets to August for the Orientals. Cover with about 2" of good soil mix.
- **Step 6** Next plant daffodils and alliums. Basically you try to fit them in around the bulbs below but don't worry too much as the first layer of bulbs will find their way to the surface around other bulbs planted above them. Again cover with 2" of good soil.
- **Step 7 -9** Continue with tulips and soil and finally the smallest bulbs that are also the earliest blooming, the *Iris reticulata, crocus*, etc. Finally cover with the last of the soil for about 2 more inches above the last bulbs.

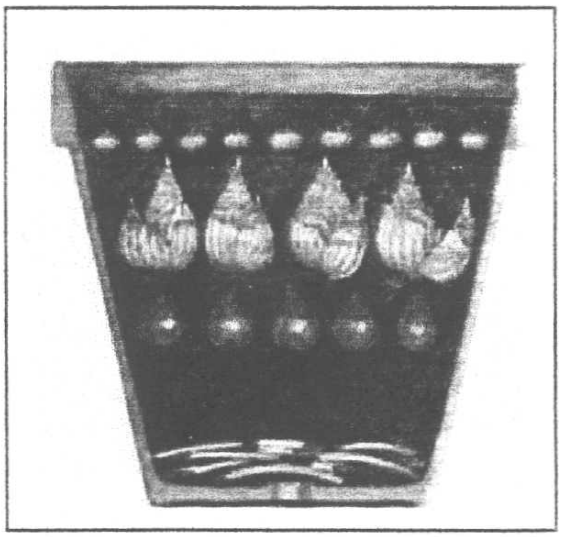


Don't worry that bulbs like tulips might be planted a little deeper than they would be if you just planted them on their own. The extra coverage will provide better protection from any freeze to thaw problems in winter and the worst that will happen is they might bloom a week later than your neighbor's tulips. You'll already have enjoyed the first crocus of spring and the same spot will continue to provide beautiful blooms right through the summer. After the blooms have faded, be sure to let the foliage die back on its own as this is how bulbs replenish themselves for next year's flowers.

This planting scheme also works well in a large container. Just keep in mind if you plan to use these bulbs for indoor forcing, all will grow taller, weaker stems than they would outdoors, so choose shorter-stemmed varieties.

Select a pot that is sufficiently wide and deep. 10 inches high is a minimum size for a mixed display. Insulate the pots with bubbly plastic on the inside, leaving a drainage hole and place broken crockery or gravel on the bottom to aid drainage. Then apply a layer of soil. The first layer of bulbs consists of the tallest and latest flowering type. Then add more soil, enough to totally cover the first layer.

The second layer of bulbs has to be of an intermediary size and grow when the first layer has died back. If your container is deep enough, at least 14 inches, you can place a third layer. Really big pots can hold even a fourth layer. Cover the last layer with sufficient soil.



Continue on page 12

After potting, the bulbs need a long period of consistent, cold temperatures. Start them out with temperatures in the 40s; after a few weeks, the temperature should drop to around 35 degrees. A compost thermometer will help you to monitor the soil temperature, which is more important for proper root growth than the air temperature. The bulbs may need to be watered once or twice during this cold period.

If the bulbs are kept outside, they should be covered with mulch to keep them in the dark, to keep them from freezing and to maintain even temperatures. Once the roots are established, flowers and stems develop within the bulb even as temperatures drop. Autumn leaves or loose straw are adequate mulches. Some people keep these potted bulbs in cold frames and cover them with a foot of perlite, removing pots as wanted after the required chilling.

Once chilled, the containers can be forced to early bloom by bringing them indoors or simply uncovered in spring and left to bloom naturally outside. Give the bulbs time; rushing the chilling process only produces weak flowers on spindly stems. Allow a good 12 weeks or more (see table below), then start to expose the bulbs to light and warmth. Conditions in this transitional period should mimic early spring -- cool daytime temperatures, colder at night, and bright, indirect light.

Common name *(Latin name)*	**Chilling period in weeks**	**Weeks after chilling until blooms open.**
Glory-of-the-snow - *(Chionodoxa luciliae)*	15	2-3
Snow crocus - *(Crocus chrysanthus)*	15	2-3
Dutch crocus - *(Crocus vemus)*	15	2
Winter aconite - *(Eranthis hyemalis)*	15	2
Checkered fritillary - *(Fritillaria meleagris)*	15	3
Snowdrop - *(Galan thus nivalis)*	15	2
Hyacinth - *(Hyacinthus orientalis)*	11-14	2-3
Reticulata iris - *(Iris danfordiae, I. reticulata)*	15	2-3
Grape hyacinth - *(Muscari armeniacum)*	13-15	2-3
Daffodil - *(Narcissus)*	15-17	2-3
Siberian squill - *(Scilla siberica)*	15	2-3
Tulip - *(Tulipa)*	14-20	2-3

Source: Layering Bulbs-Getting the Most Bloom in a Small Garden. Accessed September 25, 2006 http://www.gardenforever.comm/pages/artlayeriing.htm. Ross, Marty. Forced Flower Bulb Combinations - Forcing Bulbs to Bloom early in Container. Flower & Garden Magazine, Oct-Nov, 1994.

JUST FOR FUN

Cultivars of Love: In keeping with Valentine's Day, and the theme of love, match the cultivars on the right with the appropriate descriptions on the left.

1. Hosta, blue quilted leaves, pale lavender flowers early, medium size	A. Obsession
2. Hosta, green with dark green and jagged margins	B. Love Pat
3. Hosta, 1996 hosta of the year, glossy green leaves, wide creamy edges	C. So Sweet
4. Daylily, gold flowers, dark maroon eye, rebloomer, tetraploid	D. Love's Triangle
5. Peony, double pink	E. Exotic Love
6. Sedum, mats of blue leaves, pale pink flowers in spring	F. Purple Passion
7. Sempervivum, deep purple foliage with slight green in centers	G. Pillow Talk
8. Sempervivum, green foliage tipped with deep red	H. Wedding Lace
9. Fountain grass, silver variegated, short	I. Ruby Heart
10. New England aster, white flowers	J. Hot Lips
Bonus: Turtlehead, rose flowers late	K. Little Honey

Flowers at the Zoo: Some flowers are named after animals and wildlife, having plant parts resembling them. See how well you know these!

1. Attracts bees	A. Stachys
2. Attracts butterflies	B. Miscanthus
3. Red as a cardinal	C. Lobelia cardinalis
4. Bells white as hares	D. Monarda
5. Seeds resembling a crane's beak	E. Asclepias
6. Seeds are as small as ticks	F. Bergenia
7. Soft as a lamb's ear	G. Geranium
8. Rub the glassy big leaf t hear the pig squeak	H. Campanula rotundifolia
9. Caterpillars ("worms") don't bother this	I. Coreopsis
10. Gold horizontal stripes on leaves, reminding one of a zebra	J. Artemisia

Answers: Cultivars of Love: 1.B, Love Pat; 2. A, Obsession; 3. C, So Sweet; 4. E, Exotic Love; 5. G, Pillow Talk; 6. D, Love's Triangle; 7. F, Purple Passion; 8. I, Ruby Heart; 9. K, Little Honey; 10. H, Wedding Lace; Bonus: j, Hot Lips.

Answers: Flowers at the Zoo: 1. D, Bee Balm; 2. E. Butterfly Flower/Weed; 3. C, Cardinal Flower; 4. H, Harebells; 5. G, Cranesbill; 6. I, Tickseed; 7. a, Lamb's Ear; 8. F, Pig Squeak; 9. J, Wornwood; 10. B, Zebra Grass 'Zebrinus' cultivar.

Source: Games from Perry's Perennial Pages, The Perennial Arcade, http://www.uvm.edu/%7Epass/perry/arcade.html

WHY RHODODENDRON LEAVES CURL IN WINTER

When the temperature drops below -35°F rhododendron leaves begin to cup and curl at the edges. At 24°F. the leaves have curled so tight that half the leaf surface has disappeared and the leaves droop. When temperatures hit the teens, leaves shrivel even tighter, turn brownish-green and dangle like stiff string beans. This response to temperature changes is a rhododendron's method of preventing loss of moisture through the leaves.

The upper side of a rhododendron leaf is leathery. The bottom side is dappled with tiny air valves that control the flow of air in and out of a leaf. Cold air contains less moisture than warm air. So when low temperatures and high winds arrive the leaf valves close. By looking out a window on a wintry day one can determine roughly how cold it is by the degree the rhododendron leaves have curled and dropped. When temperatures rise the leaves open again.

The rhododendron makes the same response in summer when temperatures become excessive; only the leaves curl upward to prevent undue moisture loss.

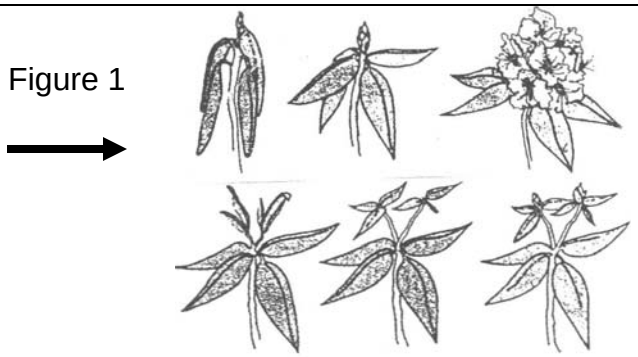
Rhododendrons are also subject to leaf scorch in winter months, particularly in January, February, and March when the sun marches northward. That is why these plants prefer broken shade, or the comfort of a nearby hedge or building.

Winter protection in severe climates can be given a rhododendron by means of temporary windbreaks. Rhododendrons also thrive better when mulched with loose material after the ground has been frozen.

Rhododendron Year of growth: winter wilt through spring flowers to new growth and buds *See figure 1 at top of the next column.*

Source: CCE Otsego County Master Gardener Newsletter Nov/Dec 2001

Figure 1



COLD WEATHER COMPOSTING

Home composting lets you enrich your garden while cutting down on waste sent to the landfill. The composting process works swiftly during the warm months and slows way down in cold weather. But there are ways to keep the process going during winter.

One approach is to dig the compost pile a little below ground level. If your pile is above ground, wrap the south side with black plastic and cover the pile with leaves or straw. Piles 3 cubic feet or larger are better suited for maintaining the heat necessary for decomposition.

MULCHES FOR WINTER

In addition to their weed control qualities and moisture conservation advantages, mulches provide winter protection for shallow rooted plants. A mulch serves to prevent rapid temperature fluctuations in the soil, and reduces the danger of winter damage to the plants.

Mulches should not be placed around plants just yet. Wait until after we have had a few frosts; the warmth from the soil will provide protection to the liberal application (two to three inches) of a mulch that has a coarse structure, will decompose slowly, and will complement your landscape. Wood chips will do an effective job.

If a mulch has been applied already, it should be raked away until we have had a few frosts, then replace the mulch when the ground surface freezes.

Source: CCE Otsego County Master Gardener Newsletter Nov/Dec 2001

FALL & WINTER PERENNIAL CARE

Many perennials are better left standing over the winter rather than cutting them down. There are several reasons for this. In addition to many of the perennials having attractive foliage and/or seed heads, they offer food resources for birds. Many birds find the seeds of perennials particularly tasty.

The stems of perennials also offer a place for some birds to hide during the winter. With some marginally hardy perennials, leaving the stems up for the winter aids in over-wintering. The foliage helps to insulate the crowns. Mums seem to benefit a great deal from this practice. Another reason to leave stems stand is that if the perennial is a late riser in the spring, the stems will help to mark the spot and prevent any accidental digging in the area that might harm the underground portions of the plant.

Cutting back perennials in the fall may be something you would want to do especially if you were bothered by foliage diseases. Removing the old foliage would be a positive in this case as it helps to reduce the amount of innoculum present to reinfest next year's foliage.

Removing foliage can also be one of pure aesthetics. Some gardeners like to see standing perennials in the winter and others don't. When you cut perennials down, do so after they have gone dormant. This is usually after the plants have experienced several hard frosts. Cut the plants down to within 2-3 inches of the crown. Cutting too close can result in winter injury on some perennials due to the fact that the buds for next year's growth are right at the surface or higher and not below the soil line.

If you apply a winter mulch, wait until the ground has frozen, then spread the mulch, being careful not to cover the crowns of plants because this can cause decay of the crown. Lay the mulch so it is 2 or 3 inches from the base of the plants.

Source: CCE Otsego County/Master Gardener Newsletter - November-December 2006

WINTER TREE PROTECTION

There's been some confusion lately about the advisability of wrapping young, thin-barked trees for winter. The International Association of Arboriculture has said wrapping trunks tightly with paper tree wrap is not a good idea because

A) it is not particularly effective at preventing sunscald, and

B) people usually leave it on too long, which means there is moisture trapped between the wrap and the trunk, resulting in rotting and potential insect problems.

There are some ways to protect thin-barked, immature trees that won't jeopardize their health, however. You can use a plastic tree guard that looks like a big tube, sliced vertically down one side to allow it to fit around the trunk. The tube must be several inches wider than the tree trunk to allow for good air circulation around the bark. Though somewhat unsightly, most people leave these guards on year-round so they can serve double duty. Besides shielding the trunks from winter sun, they protect them from careless weed whacking and lawn mowing.

Another option is using twine to tie a length of two by four or similar piece of lumber to the south or southwest side of the tree each October or November. This surely does not add to the aesthetic appeal of any landscape, but it does serve to reflect sunlight and keep it from heating that south/southwest side of the trunk that's most at risk for sunscald from repeated expansion and contraction of cells each winter. Of course, you'll want to take the boards off in spring, but they can be stored easily and reused for years until trees develop a rougher, corky textured bark that needs no further protection.

Source: Deborah Brown, Extension Horticulturist, University of Minnesota

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