



chicago botanic garden

# HYDRANGEA

*“Why doesn’t my hydrangea bloom?”*

*“Why did my blue hydrangea flowers turn pink?”*

These questions are common Hydrangea problems. Hydrangeas may fail to thrive or bloom for the following reasons:

- too much or too little sun
- incorrect pH
- excessive fertilization
- improper pruning
- improper moisture
- improper soil
- lack of winter protection on certain varieties

## Sunlight vs. shade

It is a common misconception that hydrangeas will thrive in full shade with no direct sun. Although they can be successfully grown in full shade, they will not bloom well. Depending on the hydrangea species, some require full sun with adequate soil moisture, while others will benefit if given shade in the afternoon when the sun is the strongest.

## pH

While most hydrangeas grow better in soil that is lower in pH (acidic), they will tolerate higher pH soils (alkaline) quite well. The most common reason for reducing a hydrangea’s soil pH level is if blue rather than pink flowers are desired. Hydrangea flowers will be pink in alkaline soil and blue in acidic soil. Pink hydrangea flowers can be changed to blue by acidifying soil and maintaining the pH in the 5.0 to 5.5 range. Adjusting a soil’s pH will need to be done annually in order to achieve and maintain proper results. The results from a soil pH test kit will determine existing pH levels and the need to add lime or sulfur in order to adjust the soil accordingly. Tap water may alter test results; therefore, it is important to use deionized water with a soil testing kit. Sulfur should be added in order to lower a soil’s pH. Lime should be added in order to raise a soil’s pH. Elemental sulfur, also called flowers of sulfur, or iron sulfate are better alternatives to using aluminum sulfate because aluminum can reach toxic levels in the soil. While aluminum is a key element to lower a soil’s acidity and change the color of hydrangea flowers, it can also become toxic at high levels.

Adjusting your soil’s pH to change bloom color is only applicable for colored hydrangeas. White hydrangeas will never turn pink or blue; therefore, it is usually not necessary to add supplemental sulfur to soil where white hydrangeas grow, unless unusually high alkalinity causes growing problems. Soils in the Chicago area are normally very high in pH, so adding lime, which raises a soil’s alkalinity, is rarely needed.

## Fertilization

Fertilizing hydrangeas is generally not recommended unless a nutrient deficiency is observed. Too much nitrogen can produce excessive green growth at the expense of flowers.

## Pruning

Hydrangeas fall into one of two pruning categories. The pruning category is determined by whether or not the hydrangea blooms on old wood or new wood. Old wood is growth produced in a previous growing season. Hydrangeas that bloom on old wood should only be pruned immediately after they bloom and pruning should be kept to a minimum. If this type of hydrangea is pruned in the fall or winter, it will not bloom in the spring or summer, and will flower in the following growing season. New wood is growth produced in the current growing season. Hydrangeas that belong in this category can be left unpruned and only blackened winter-injured tips removed in the spring. Certain hydrangea species can be pruned almost to the ground in late winter/early spring and will produce flowers on new branches that grow in the spring. Dead or diseased branches can be pruned out at any time of the year.

## Moisture

Hydrangeas thrive in well-drained soil that is consistently moist but not soggy. It is not unusual to see some hydrangea varieties droop and wilt in the hottest months of the summer. A two- to three-inch layer of mulch will help to conserve moisture.

## Soil

Hydrangeas are best planted in soil that has been amended with adequate amounts of organic matter, such as compost, leaf mold, or well-composted manure.

## Cold damage

Most hydrangea varieties grow well in the Chicago area and are reliably winter hardy. However, some species such as *H. macrophylla* suffer from considerable branch dieback during the cold months and will benefit from winter protection. Winter protection can be provided by constructing a wire framework around the plant and filling the space with shredded leaves to a depth of approximately 10-12" for insulation. Cold winters and

late spring frosts can often kill flower buds, preventing plants from blooming in the spring. When unexpected cold weather is predicted in late spring or early summer after winter protection has been removed, it may be necessary to cover tender hydrangea species with cloth, burlap, or heavy paper to protect flower buds. Plastic should never be used as winter protection because it may damage tender plant tissue.

## Hydrangea species and cultivars

### Climbing hydrangea

#### *Hydrangea anomala petiolaris*

Vigorous climbing vine with nice exfoliating bark that attaches itself by rootlet holdfasts

White, fragrant blooms on new wood in mid-summer

Requires little or no pruning

Slow growing until roots are established.

Needs to climb on sturdy structure; can climb to 80'

### Smooth hydrangea

#### *Hydrangea arborescens*

White blooms on new growth in early to mid-June

Prune hard 12" from ground in late winter or early spring

3-5' h x 3-5' w

Flops in too much shade

### Annabelle or snowball hydrangea

#### *Hydrangea arborescens* 'Annabelle'

White 6-8" blooms on new growth starting in mid-June

Prune hard 12" from ground in late winter or early spring

3-5' h x 3-5' w

Full sun required for good blooms

### Hills-of-Snow hydrangea

#### *Hydrangea arborescens* 'Grandiflora'

White blooms on new growth June to August

Prune hard 12" from ground in late winter or early spring

3-5' h x 3-5' w

### Bigleaf hydrangea

#### *Hydrangea macrophylla*

Pink or blue blooms (dependent on soil pH) on old wood

Prune minimally only when necessary immediately after flowering.

3-6' h x 3-6' w

Not reliably bloom hardy in zone 5

### Endless Summer hydrangea

#### *Hydrangea macrophylla* 'Balmer'

Pink or blue blooms (dependent on soil pH) on both old and new growth in summer

Prune branches with winter dieback in spring

3-5' h x 3-5' w

### Nikko Blue hydrangea

#### *Hydrangea macrophylla* 'Nikko Blue'

Pink or blue blooms (dependent on soil pH) on old growth in summer

Prune minimally only when necessary immediately after flowering

4-6' h x 4-6' w

Not reliably bloom hardy in zone 5

**Panicle hydrangea*****Hydrangea paniculata***

White blooms in midsummer that fade to various shades of pink on new growth

Pruning not essential, however, may prune down to 12-24" in late winter or early spring

Various cultivars up to 20' h X 20' w

Extremely cold-hardy hydrangea; full sun required for good blooms

**PeeGee hydrangea*****Hydrangea paniculata* 'Grandiflora'**

White blooms that fade to purplish-pink on new growth July to September

Thin the plant in early spring to 5 to 10 primary shoots for larger blooms

10' h x 10' w

Excellent shrub form

**Limelight panicle hydrangea*****Hydrangea paniculata* 'Limelight'**

Lime green to white blooms on new growth

Pruning not essential, however, may prune down to 12-24" in late winter or early spring

5-8' h x 5-8' w

Full sun required for good blooms

**Late panicle hydrangea*****Hydrangea paniculata* 'Tardiva'**

White blooms tinted pink on new growth in September

Pruning not essential, however, may prune down to 12-24" in late winter or early spring

6-8' h x 4-6' w

Full sun required for good blooms

**Unique panicle hydrangea*****Hydrangea paniculata* 'Unique'**

White blooms tinted pink on new growth in summer

Pruning not essential, however, may prune down to 12-24" in late winter or early spring

Up to 10' h X 10' w

Full sun required for good blooms

**Oakleaf hydrangea*****Hydrangea quercifolia***

White blooms on old growth June through July

Minimal pruning; pruning should be done immediately after bloom

4-8' h x 4-8' w

Excellent shrub form with good fall color

**Little Honey oakleaf hydrangea*****Hydrangea quercifolia* 'Little Honey'**

Golden yellow foliage with white blooms tinted pink on old growth in summer

Minimal pruning; pruning should be done immediately after bloom

4' h x 3' w

Exfoliating bark. Good red fall color

**Serrated hydrangea*****Hydrangea serrata***

Pink or blue blooms (dependent on soil pH)

Certain cultivars bloom on both old and new growth

3-5' h x 3-5' w

Hardier than *macrophylla*