



HYDRANGEAS

Culture Guide

•Unrooted Cuttings

ARRIVAL: Unload immediately and place in the greenhouse pot to pot tight at 60 – 65°F, nighttime temperature. Water ONLY first thing in the morning. The foliage and the bud need to be dry at sunset in order to prevent botrytis and bud abortion.

FORCING PERIODS: The forcing period will vary depending on the nighttime temperature and the varietal selection. As a general rule, the forcing period is as follows: 16 weeks at 54° F, 12 weeks at 60°F, and 10 weeks at 65°F.

FORCING TEMPERATURES: The forcing time is directly related to variety and temperature. Certain varieties, such as Merritt Supreme and Blue Danube, are better suited for Easter, while Rose Supreme and Mathilda Gutges, which are late season varieties, are better suited for Mother's Day. The forcing nighttime temperature should be between 60 – 65°F and the daytime temperature should be between 70 – 75°F. During the last two weeks of forcing, the nighttime temperature should be lowered into the mid to upper 50's to intensify the flower color.

WATERING: Hydrangeas are heavy users of water once their leaves are fully expanded. Before this expansion, do not over water or root rot will occur. Always water first thing in the morning, trying to avoid watering the leaves or flowers. If water stays on the leaves and flowers at night, botrytis and powdery mildew can form, reducing the market value of the plant and causing bud abortion.

REPOTTING: If repotting, there are a few rules, which need to be followed. First, the root ball needs to be severely scarified in order to encourage root penetration into the new growing medium. Next, never let the original root ball to dry out; this will burn the newly formed root hairs, reducing the plant's vigor and quality and delaying root formation into the new medium. If watering with a tube system, place the emitter directly above the original root ball. Use ONLY a low fertility potting mix; high salt levels will scorch the root hairs, delay root initiation into the new medium, and reduce plant vigor and quality. One indication of overfertilization is cupped foliage, the margins of the leaves curling up.

SPACING: Initial spacing is pot to pot tight until the new growth is 1 ½ to 2" long. At this stage, apply the growth retardant and space shortly afterwards. Final spacing is between 1/3 to ½ square feet per flower head, or approximately 1 ¼ square feet for a three flower plant and 1 ½ square feet for a four to five flower plant.

GROWTH RETARDANTS: Apply B-9 at a rate between 1500 to 2500 ppm when the new growth is 1 ½ to 2" long. This growth occurs approximately at the third week of forcing.

FERTILIZATION: While Hydrangeas are heavy feeders, they can be damaged with too much feed in the early stages of development. Normally, one application of 20-20-20 at the rate of 250 ppm will suffice until February 10th. The biggest problem growers encounter is overfertilizing early on before there is sufficient leaf expansion. When the leaves are rapidly expanding, the fertilization schedule is as follows:

For Red and Pink varieties, high levels of phosphorus and low levels of potassium are required; aluminum is less available with this ratio. The pH level needs to be maintained between 5.8 to 6.2.

For all colors, a constant fertilization of 20-10-20 can be applied at a rate of 100 to 150 ppm. Insure there is a minimal of 10 to 15% leachate at each feeding to reduce salt accumulation. Feed at this rate two to three times in a row, then clear water the next two to three irrigations. The alternate fertilization method is intermittent feeding, 20-10-20 at the rate of 350 ppm once every ten days, again with 10 to 15% leaching. Whichever method is used, never apply fertilizer to a dry root ball; it will burn the root hairs, diminishing the quality of the plant. *For Blue and white varieties,* apply aluminum sulfate at the rate of 7 ½ pounds per 100 gallons of water weekly, starting after the leaves have begun to expand, about February 15th. This is to be done approximately three times to insure a good blue color for blue varieties and a "fresh" white color for white varieties. Drench only the growing media with this solution. Avoid getting any aluminum sulfate on the leaves or damage will occur; immediately wash off the leaves if the aluminum sulfate gets on them. As with fertilization, never apply aluminum sulfate to a dry root ball because it will burn the root hairs. Aluminum sulfate will help lower the pH; maintain blue and white's pH between 5.0 to 5.5. Remember, blue varieties are light feeders which need high potassium and low phosphorous levels to keep the aluminum available to the plants. If the root hairs are damaged or the pH is too high, interveinal chlorosis can occur. Leach the root ball thoroughly two to three times, then start reforming the root hairs. The chlorosis will disappear and health green leaves will start forming. To reduce the pH, apply an acid forming fertilizer and / or inject the water with phosphoric acid.

LIGHT INTENSITY: Force dormant hydrangeas under full light intensity. Once the flowers start to show color, reduce the light intensity to no more than 3000 foot-candles. This will prevent flower burning. White varieties are the most susceptible to burn. The further south hydrangeas are grown, the more important managing light intensity becomes.

TIMING: When forcing hydrangeas at a nighttime temperature of 60°F, timing can be established on the following guidelines based on flower size:

8 weeks before sales date -----pea-size
6 weeks before sales date-----nickel-size
4 weeks before sales date-----half dollar-size
2 weeks before sales date-----starting to show color

VARIETIES:

<i>Pink</i>	<i>Blue</i>	<i>White</i>
Merritt supreme (E)	Blue Danube (E)	Sister Theresa (E)
Kastelen (M)	Mathilda Gutges (M-L)	Regula (M)
Brestenburg (E)	Brestenburg (E)	
Firelight (M)		
Dark Pink * (M)	Blaumeister * (M)	Lybella * (M)

* = Lace cap varieties (E) = early to flower (M) = mid flower time (L) = late to flower

INSECT AND DISEASE: Major insect problems can include aphids and spider mites. Scout for insect populations on a frequent basis. Apply recommended insecticides as needed. The major disease problems are powdery mildew and botrytis. Through proper management of the greenhouse environment, including horizontal airflow 24 hours a day, reducing the relative humidity to approximately 80%, watering first thing in the morning, and watering the soil only, these two diseases will be held in check.

A basic rule of thumb when applying pesticides to hydrangeas is never use an oil base or emulsion concentrate fungicide or insecticide. These oils will burn hydrangeas' delicate stems and leaf surfaces. Wettable powders are the safest to use; mix them with a minimal amount of surfactant. Please consult your state agricultural extension agent for pesticide recommendations. The following is a list of pesticides that have been used on hydrangeas: Strike, Mavrik, Daconil, Pentac, Kelthane.

Soil drenches are normally not necessary if the potting medium has plenty of aeration. Again, the main source of root damage is from overfertilization. Managing water and fertility rates and checking the soil's pH and EC on a regular basis will minimize root damage.

Please note that above instructions are only a guide and results depend upon the specific conditions of each producer.

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