Aris® Keepsake Plants®

2015-16 Technical Guide
FORCING HBA DORMANT HYDRANGEAS

Updated July 2015

Features of HBA Varieties

We list 11 varieties from the Hydrangea Breeder's Association in Germany

- Full range of colors in blue, pink, red, white and bicolors.
- Compact habit with good breaking action, better cane count and strength than old-time varieties.
- Good uniformity from pot to pot.
- Strike new roots and get out to the edge of the pot faster.
- Generally force faster than older varieties.
- Most will not require PGR's.
- Excellent keeping quality in the store and home.

All About Your Liners

Product Specs – measured from the bottom of the pot.

- **6 ½" liner:** 4+ canes (Bela 3 canes) 9"-11" in height. For pots 8" and larger.
- **4½" two-pinch liner** (our most popular size): minimum 4 canes (Bela 3 canes) 6" to 9" in height. For 6" and larger pots.
- **4½" single-pinch liner:** 3 canes, 6" to 9" in height. Will make a 3-bloom 6" pot.
- **21-cell non pinched:** 6" to 8" in height. For single-stem 4½" pots with one big bloom.

Availability in 2015-16

- December 21, 2015 – March 21, 2016
- Minimum order (30 boxes)

Quality Control

- Liners are machine pinched for best uniformity and consistency.
- Only strong terminal canes are counted for cane count.
- Grading is a 5-step process. Three in the field, the 4th when liners are moved to the cooler, and the 5th at pack time.
- Aluminum Sulfate is applied 8 to 9 times in the field as needed, ONLY on BLUE varieties (Early® Blue, Bela and Bavaria) to give you the needed pH and Aluminum to start when potting.
- Usually weed and weed seed free.

Starting Out

- See Chart 1 for recommended finished pot size by variety.
- Use soilless media, mostly peat, pH 5.0. Some Perlite or Haydite can be added for better aeration. Add gypsum to provide calcium on all varieties without effecting pH.
- **POT IMMEDIATELY UPON RECEIPT** at the same level as the crown of the liner. If you must delay planting, unbox and refrigerate at 35°F (2°C) to avoid Botrytis and stretch.
- Easter 2016 is early, so to make Easter sales if you must delay planting, unbox, and put the trays in a warm greenhouse, water thoroughly and don't let the liners dry out.
- Water pots in thoroughly.

1. Recommended Finished Pot Size By Variety

Variety	Color	4.5"	6.5"	8"	10"
Bavaria	blue/white		x	x	
Bela	blue		x	x	x
Chique	blush white picotee edge	x	x		
Early® Blue	blue	x	x		
Early® Rosa	pink	x	x		
First White	white		x	x	
Hot Red*	red	x	x		
Pink Picotee	light pink		x	x	x
Pink Sensation	pink		x	x	x
Tivoli	red/white	x	x		
Vanilla Sky	white	x	x		

*Hot Red is not recommended for 6" or larger pots without use of Fascination (usually required for adequate height).

2. Average Time to Sepal Color by Response

We define Sepal Color as the florets laying out, and partially showing color on the outer florets of the flower head. (For April 1st flowering in the North, grown at 65°F (18°C) without the use of PGR'S).

Variety	Color	Response in days with no B-NINE	Response Group
Bela*	blue	65	EARLY
Chique	blush white picotee edge	65	
Vanilla Sky	white	68	
First White	white	68	
Early® Blue	blue	72	MID
Early® Rosa	pink	72	
Hot Red	red	72	
Pink Sensation	pink	77	
Tivoli Red	red/white	78	LATE
Pink Picotee	light pink	79	
Bavaria	blue/white	80	

*Bela is the earliest to flower, without B-Nine. However, depending on the application of B-Nine, it will flower with, or even a bit later than Early® Blue. First White can also be delayed if PGR's are used.

Timing The Crop

- Grown as recommended, a range of 60 to 80 days are needed till sepal color by April 1st, in the North, for our HBA varieties. Mother's Day crop time is shorter. See Chart 2 for details.
- For flowering varieties together, plant later varieties first and the earlier varieties later.
- Also make use of warmer and cooler locations in your greenhouse for plants ahead or behind schedule.
- B-Nine can add up to 7 days in crop time if applied after buds are more than 2" in diameter. If height control is still needed, use Bonzi at 1-2 ppm applied as a drench.

2-4-6-8 Crop Development Guidelines

2 weeks before sales – sepal color showing

4 weeks before sales – buds are quarter sized

6 weeks before sales – buds are nickel sized

8 weeks before sales – buds are dime sized

Growing The Crop

Light Intensity

High levels – up to 5000 to 7000 foot candles (fc) for most of the crop.

Reduce to 2500 to 3000 fc when sepals begin to enlarge, to prevent sepal burn and color fade.

Spacing

- Near pot-to-pot the first 2 to 3 weeks
- Minimum spacing afterward:

4.5" Pot Single Stem	8" x 8"
4.5" Pot Pinched	10"x 10"
6.5" Pot	16"x 16"
8" Pot	20"x 20"
10" Pot	24"x 24"

- Crowding will contribute to uneven flowering, stretch, Botrytis and Powdery Mildew.

Temperature

- Bottom heat is a plus the first 4 weeks to activate root growth.
- First 7 days maintain a constant average of 65°F (18°C) to promote rooting.
- Day 8 onward, maintain a 65°F (18°C) night temperature and a 70-75°F (21-24°C) day temperature starting about 7 a.m. Begin charting your growth. (See Graphic Tracking, on page 3, to guide your temperature and PGR Usage).
- If growth is too rapid, delay raising day temperature until 10 a.m.
- If growth is still too rapid, at 7 a.m., drop temperature to 60°F (15°C) till about 10 a.m. Then raise the temperature to 70-75°F (21-24°C).
- Continue adjusting as needed, based on your graphic tracking.

Fertilization – pH and Color Control Guidelines

- It all goes together – fertilizer used influences pH, and pH determines color.
- Before starting out it is extremely important to know the pH of your water. As well as using a pH meter to check media pH throughout the crop to determine if you are on target.

Starting Out: Use a constant feed of 150 to 200 ppm nitrogen with drip or tube irrigation, and 100 to 150 ppm with sub irrigation. Get to an EC reading of .6 – 1.0 using a 2:1 saturated paste ratio.

In winter and early spring, you generally will irrigate more on drip or tube irrigation than sub irrigation, so getting to the desired EC will take longer with sub irrigation.

Color Control Chart

Required	Blue Varieties	Pink, Red And White Varieties
pH	5.0 to 5.5*	5.8 to 6.2
Phosphorous	Low	High
Potassium	High	Low
Fertilizer	Use 20-2-20,14-0-14 or 15-0-30	Use a high P fertilizer such as 15-30-15
When using acid injection	Use Sulfuric Acid	Use Phosphoric Acid

*If blue color has been a problem. Go lower, but not below 4.0

Growing On: After reaching the desired nutrient level, cut back to 100 to 150 ppm, on a constant basis.

Finishing: Reduce feed to every other irrigation at first color.

During all three stages for Starting Out, Growing On and Finishing, be sure to use a fertilizer with correct analysis of potassium or phosphorous, depending on the color of the variety. (See Color Control Chart).

Tips For Best Blue Color

If you had trouble getting a good blue at a steady pH of 5.0, try going a bit lower, but no lower than a pH of 4.0.

Before you do go lower, run through this check list to insure all of these tips are being followed.

- **Be aware:** numerous applications of Aluminum Sulfate have been applied during liner production on Early® Blue, Bela and Bavaria, but you must continue these applications in addition to the regular feeding program.
- Let liners acclimate for 5-7 days after coming out of the cooler and potting, allowing root systems to become established.
- Starting about 7-10 days after potting, we suggest applying 2 successive Aluminum Sulfate irrigations before space out. This gets the pH down and future applications should follow as needed.
- After the 2 early successive applications, go by pH reading. If media pH is 5.0, or certainly by 5.5, apply Aluminum Sulfate again.
- The rate is 8 lbs/100 gallons applied to thoroughly drench the media. This should provide an EC of about 2.3-2.5.
- If you apply by hose, 2 irrigations will normally be necessary to thoroughly drench the media and get a run through the drain holes.
- Apply to a moist media.
- Three to 4 applications are only a general guideline. Let your pH monitoring guide you.
- If you have maintained a pH of 5.0 in the pot and still do not get a good blue, go lower to 4.5 or 4.0, but no lower.
- Do you drain the feed line before applying Aluminum Sulfate? If not you will dilute the Aluminum Sulfate.
- Aluminum Sulfate does not dissolve well. Try putting it in a bucket and make a slurry mixture, then add it to HOT water in the barrel, using an agitator to minimize precipitation.
- Keep in mind Aluminum Sulfate moves rather slowly through the plant, so stay with the process. Any fix is not a quick fix.
- If acid injection is used, use Sulfuric acid. NOT Phosphoric acid!
- Use a fertilizer with a high potassium analysis/low phosphorous analysis. (See Color Control Chart.)

Tips For Best Pink, Red And White Colors

- If media pH moves above 6.2, you may experience chlorosis.
- Iron chelate applications such as Iron Sequestrene 330 or Sprint 138 can be effective.
- It is difficult to green up foliage once flowering begins.
- Use a fertilizer with a high phosphorous/low potassium analysis. (See Color Control Chart).

If acid injection is used, use Phosphoric, NOT Sulfuric acid.

- If acid injection is used, use Phosphoric, NOT Sulfuric acid.

Tips For All Colors

Check pH and EC weekly, and on the day before you feed, to adjust for chlorosis, pH, fertilizer analysis and concentration.

Water Management

- Plants require frequent applications as they grow and develop flowers, so soft growth is best avoided with proper spacing and low humidity.
- Avoid overhead irrigation.
- **Avoid wilting at all costs, and at all times.**

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Plant Growth Regulators (PGR)

Good light, proper spacing, temperature and a good root system are always basic tools to control height.

Use Graphic Tracking to guide your PGR usage

Track height weekly, by variety, to determine if you are on schedule.

Make adjustments in temperature (see Temperature section on page 2) and PGRs if needed.

1. Determine the height of your liners at potting, the finished height required, and the number of weeks till sell date.

2. The difference in the finished height required, less your measure height of the liner, divided by the number of weeks you have will give you the average number of inches or centimeters of growth required each week to be on track.

Easter

6 ½" pots and larger may not require B-Nine, but in extended cloudy periods, it may be needed if growth is too rapid or internode stretch occurs. Start at 750 ppm, and increase the concentration up to 2500 ppm if needed. First White, Bela and Bavaria are the most likely to require it.

4 ½" pots will require B-Nine, since the dormant liner is about two-thirds the finished height desired for most markets.

Mother's Day and beyond:

Flowerings will require B-Nine applications for all sizes.

Applications of B-Nine can begin when true leaves begin to unfold, and internode length is about ½". Start with 750 ppm, and increase applications to 2000 ppm by variety, every 10 days if necessary, while considering weather and final height required. (See Graphic Tracking Chart above.)

Bela, Bavaria and First White are the most vigorous varieties, and should be monitored for more applications than the others varieties, with concentrations up to 5000 ppm.

B-Nine can be applied until buds reach the size of a quarter (1") on early spring crops with a minimal amount of delay and up to 2" on Mother's Day and later crops.

Bonzi at 2 ppm can be used as a DRENCH to stop growth in most cases. If necessary, 5 ppm can be used, but may reduce flower head size.

Fascination can be used if the desired plant height is behind schedule.

IT IS MOST LIKELY TO BE NEEDED WITH HOT RED IN 6" POTS OR LARGER.

It can be applied TWICE if needed at 5 ppm, 10 days apart in combination with a positive DIF of 68°F (20°C) day temperature and a 62°F (17°C) night temperature.

The time frame Fascination can be applied is from about Week 2 (after potting), when roots are established, until the buds are ¼" in diameter.

DO NOT apply later, or over use it, as that can cause splitting of the flower head.

Before using any pesticides, be sure they are registered for use. Follow label directions. The label is the law.

Insect and Disease Control

Insects

Scout regularly. Primary concerns are aphids, spider mites and thrips.

Disease

Powdery mildew and botrytis are the most common. Provide good cultural practices of ventilation, heating and air flow to keep relative humidity low. Avoid water on leaves and flowers.

continued>>>

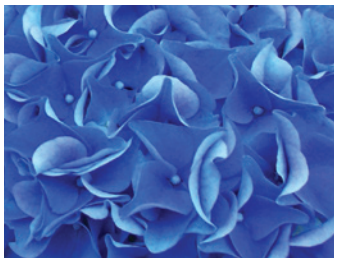
Hydrangea Varieties

Hydrangea Breeders Association (HBA) Varieties

Pink Sensation (USPPAF)
Our number one variety, and for good reason, It has good breaking action, strong stems, large mop-head flowers and uniform growth. Petals have a unique quilted appearance.

Pink Picotee
Light pink mop head. Flowers with Pink Sensation, but a bit taller.

NEW! **Early® Rosa** (USPP#16441)
Darker pink, and an earlier response, than Pink Sensation with the excellent breaking action of Early® Blue.



Early® Blue (USPP# 16441)
Our number-one blue due to an early-mid response with excellent cane count and easy-to-control habit, requiring less PGR than Bela.

Bela (USPP# 16099)
Blue mop head. Taller than Early® Blue with minimal cane count. Requires PGRs, which delays its natural response. Best for larger pots. Does develop occasional reversions to a blue lacecap form.

Hot Red (USPPAF)
Bright red mop head with a mid response and compact habit. Fascination is usually needed for 6" pots.

First White (USPP# 16204)
Early white mop head with large flowers. Expands foliage rapidly, so best for 6" pots or larger. Usually requires PGRs for height control.

Vanilla Sky (USPPAF)
Large cream-white mop head, opens to pure white. Early response like First White and more compact growth. Requires less PGRs than First White.

Bavaria (USPPAF)
Blue/white bicolor mop head with mid response. Requires PGRs for height control.

Tivoli (USPPAF)
Dark pink to red mop head with white picotee petal margins. Compact habit and late response.

Chique (USPPAF)
Blush-white mop head. Picotee petal margin is red or pink, depending on finishing temperature. Early response. Good breaking action.

6½" Round

4 ½" two-pinch

4 ½" single-pinch

21-cell single stem

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