

# Hydrangea production in containers as a system to generate floral cut stems



Robert E. McNiel, Bonka Vaneva, John Snyder and Sharon Bale  
Department of Horticulture, University of Kentucky  
Lexington, KY 40546-0091 USA



Table 1. Evaluation of stems & flowers on *Hydrangea macrophylla* cultivars grown in containers during 2005.

Cultivar	Stem Count per plant*	Stem Length > 30 cm (%)	Floral Width > 12 cm (%)	Floral Rating Scale 0-5	Harvest Length (days)	Mid-Harvest Date
All Summer Beauty, 2 year	19.0 cb	81 a	77 cdef	4.0 ef	28 cdef	24JUN
All Summer Beauty, 1 year	16.1cd	50 bcd	89 ab	4.3 cd	34 bcde	20JUN
Decatur Blue	12.3 de	45 d	71 fg	3.7 g	111 a	19JUL
Dooley	19.6 bc	85 a	73 ef	4.4 bc	19 fgh	23JUN
Mme Emile Mouilléré	18.3 c	75 a	75 def	4.1 de	24 efgh	21JUN
Fasan	15.3 cde	57 bc	82 bcde	4.0 ef	11 h	29JUN
Gén. Vic. de Vibrayé	16.6 cd	58 bc	75 def	4.1 de	45 b	19JUN
Harlequin	24.6 ab	48 bcd	77 cdef	4.1 de	27 defg	11JUL
Masja, 2 year	19.6 bc	87 a	82 abcde	4.5 bc	19 fgh	01JUL
Masja, 1 year	10.1 e	41 d	92 a	4.7 a	33 bcde	12JUL
Mathilda Gütges	18.1 c	50 bcd	85 abcd	4.3 cd	14 gh	30JUN
Nikko Blue, 2 Year	25.8 a	79 a	61 g	3.8 fg	40 bc	20JUN
Nikko Blue, 1 year	16.1 cd	62 b	87 abc	4.6 ab	39 bcd	22JUN
Parzival	30.2 a	62 b	69 fg	4.2 de	39 bc	9JUL

\* Values within column followed by a different letter are different at P = 0.05 using Waller-Duncan K-ratio T Test.

**Results and Discussion:** Stems were harvested from 07JUN05 to 28SEP05 and rated for number, length, width, flower color and quality. Stems per plant varied from 10 for 'Masja' to 25-30 for 'Nikko Blue' and 'Parzival'. Percentage of stems longer than 30 cm were significantly greater for two year old 'Masja', 'Dooley', 'All Summer Beauty', 'Nikko Blue' and 'Mme Emile Mouilléré' than for one year old 'Masja' or 'Decatur Blue'. Percentage inflorescence width greater than 12 cm varied from 61 % for 'Nikko Blue', 2 yr to 92 % for 'Masja'. Plants treated with aluminum produced shorter stems and narrower inflorescences than plants with no aluminum treatment. Flower quality rating, based on a scale of 1-5, ranged from 3.7 for 'Decatur Blue' to 4.7 for 'Masja', 2yr. Using the Royal Horticultural Society Colour Chart, a color was assigned to each flower. 'Mme Emile Mouilléré' was the least variable with seven colors. This contrasted with 'Decatur Blue', 'Harlequin', 'Masja' and 'Parzival' with each recording over 40 colors. Median harvest date ranged from 19JUN05 for 'Générale Vicomtesse de Vibrayé' to 19JUL05 for 'Decatur Blue'. Flower bud protection is possible. Acceptable stem numbers, lengths, and widths for the floral trade were produced.

**Materials and Methods:** *Hydrangea macrophylla* (H. m.) flowers inconsistently when field grown in the Ohio River Valley. To provide a consistent supply of flowering stems, cut-stem growers need alternate production capabilities. Inconsistent flowering is related to bud loss, likely due to cold temperatures. Using the nursery industry's over-wintering techniques of poly covered tunnels, eleven H. m. cultivars were grown in 19 L containers using a pine bark based substrate. Plants were covered directly with additional 6 mil poly for additional protection during winter temperatures below -12° C. Summer shade at 55% was provided. Plants were pruned to 25 cm during the dormant period and aluminum sulfate was added to ten plants of each cultivar to create blue flowers. With pine bark-based substrate, flowers are shades of red. Statistical analysis was completed using SAS.



Figure 1. Data were collected on stems and flowers.



Figure 2. Color comparisons between No Al(L) and applied Al(R). All Summer Beauty top 2 and Masja bottom 2.

Table 2. Number of colors represented and top 3 colors when greater than 10% of color range.

Cultivar	With or Without Aluminum	Total No. Color Chips	Chip colors with three greatest frequency per treatment. Most frequent on left.		
All Summer Beauty, 2 year	No Al	20	84C	85C	92C
	Al	15	100C	101C	100D
All Summer Beauty, 1 year	No Al	22	85C	75B	84C
	Al	14	100C	100D	97B
Decatur Blue	No Al	28	N74D	73A	75A
	Al	20	85C	100C	
Dooley	No Al	17	91C	76B	97B
	Al	12	101C	100C	
Mme Emile Mouilléré	No Al	6	WHITE	69D	
	Al	3	WHITE	N155A	
Fasan	No Al	16	63B	67C	61B
	Al	23	N78B		
Gén. Vic. de Vibrayé	No Al	28	84C	75B	
	Al	8	100C	101C	97B
Harlequin	No Al	21	63B	64C	
	Al	24	72B	N82B	77B
Masja, 2 year	No Al	24	63B		
	Al	26	N82B	N81C	
Masja, 1 year	No Al	15	73B	63B	68B
	Al	17	86C	70B	N78C
Mathilda Gütges	No Al	19	93D	100C	85B
	Al	14	93D	94C	98C
Nikko Blue, 2 Year	No Al	15	84B	84C	100D
	Al	13	100C	101C	100D
Nikko Blue, 1 year	No Al	17	84C	85C	
	Al	13	100D	100C	
Parzival	No Al	19	68B	73B	63B
	Al	41	-		



Figure 3. Overwintering structure

