

## HYBRID LILY CULTIVAR EVALUATION

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**ABSTRACT:** Seventeen Asiatic, 7 Oriental, and 2 L.A. Hybrid lily cultivars were planted in field beds to evaluate growth characteristics important for cut flower production. These qualities included stem length, stem diameter, number of flowers per stem, and the number of days to flowering. ‘Avignon’ and ‘Loreto’ required the fewest days of the Asiatic cultivars from planting to harvest. ‘Cannes’ had the largest stem diameter, while ‘Pollyanna’ had the smallest. ‘Chianti’, ‘Sunray’, and ‘Navona’ were in the group of Asiatic lilies that had the shortest stem length. ‘Ibarra’, ‘Toro’, and ‘Pollyanna’ had the fewest flowers per stem of the Asiatics.

‘Barbaresco’ required the fewest days to produce a marketable stem in the Oriental lily group. ‘Noblesse’ produced stems with the smallest diameter of all the Orientals and yielded the shortest stems among the Oriental lilies except for ‘Alliance’. ‘Acapulco’ and ‘Stargazer’ produced stems with the fewest flowers per stem.

An additional 10 Asiatic, 32 Oriental, and 11 L.A. hybrid lilies were planted in containers filled with ground pine bark in a non-replicated trial.

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**KEY WORDS:** Asiatic lily, Oriental lily, L.A. hybrid lily, cut flower, field production, *Lilium*

**MATERIALS AND METHODS:** Hybrid lily bulbs were obtained from 2 different sources for the evaluations in the field beds: Leo Berbee Bulb Co. and Fred C. Gloeckner & Co (Table 1). Bulbs from Zabo Plant Co. were purchased for the non-replicated trial (Table 2).

Field beds were prepared in a Quitman silt loam soil by broadcasting three hundred lb/ac of 8-8-8 fertilizer to the study area prior to bed formation. Beds were formed by a press-pan type bed shaper and were 6 in tall and 30 in across the top with bed centers spaced 5 ft apart. Plastic drip irrigation tape which delivers .22 gal/min/100 ft was placed in the center of the bed and buried 1 in deep. The beds were covered with black plastic mulch. Irrigation was supplied at one acre-inch per week. The beds were fertigated with 100 ppm N from Peter’s 20-20-20 once per week, and irrigated as needed in the absence of rain through the drip tape. The beds were sheltered by a 50% shade cloth.

The bulbs were planted in the field between 5/7 – 5/12/04. Four bulbs of each cultivar were planted in each replication of the trial. The bulbs were planted 4 in deep in two rows spaced 6 in apart. The bulbs in each row were spaced one foot (12 in) apart. The size of the bulbs ranged from 10/12, 12/14, and 16/18 cm.

The experimental design was a randomized complete block with four replications of each treatment. There were 4 plants in each replication. The experimental unit consisted of four plants of each cultivar that were planted on two parallel rows that were spaced 12 in apart; the plants in each row were spaced 12 in apart. The data recorded in this experiment were bloom diameter, stem length, stem diameter, and number of flowers per stem. The data were analyzed by SAS PROC GLM (SAS Institute Inc, Cary, NC). Mean separation was conducted with Fisher's Protected LSD at the 0.05 significance level.

In the non-replicated trial, bulbs were planted in 24 x 16 x 15.5 in laundry basket type containers filled with 3/8" ground pine bark. The bark media was amended with 10 lb ground limestone and 13.0 lb Osmocote 15-9-12 (9 month formulation) per cubic yard of bark. Five bulbs of each cultivar were planted in one of 3 rows in each container; thus there were 15 bulbs planted in each container. The bulbs were planted 6 in deep. Irrigation was supplied as needed to supply 1-in of water weekly. The bulbs were grown under 50% shade.

Even though the hybrid lily cultivars grown in the field beds were different from those grown in containers filled with pine bark, it appeared that the lilies in the containers grew much better than the lilies grown in the ground beds. This is an observation not supported by replicated trial data.

**RESULTS AND DISCUSSION:** In the field trial evaluation of the Asiatic hybrid lily cultivars, 'Umbria' required the longest time to produce a marketable stem compared to the other cultivars (Table 3). Conversely, 'Avignon' and 'Loreto' required the shortest amount of time to produce a marketable stem. The stem diameter of the 'Cannes' lilies was larger in diameter than the other cultivars in this trial. The stem diameter of 'Pollyanna' lilies was smaller than the stem diameters of the other Asiatic lily cultivars. The stems of 'Umbria' and 'Toronto' were longer than the other cultivars in this evaluation except for 'Toro', 'Ibarra', and 'Cordelia'.

The 'Barbaresco' Oriental lily required the fewest days from planting to harvest (Table 4). 'Alliance', 'Noblesse', and 'Casa Blanca' Oriental lilies required the longest time from planting to flowering. 'Noblesse' grew flower stems with the smallest stem diameter of the Oriental lilies. The stem length for 'Acapulco' was longer than the other Oriental lily cultivars in this trial while 'Noblesse' produced shorter stems than the other cultivars except 'Alliance'. 'Acapulco' and 'Stargazer' produced more flowers per stem than the other Oriental cultivars.

**Table 1.** Description of hybrid lilies grown in field beds at the North Mississippi Research & Extension Center in 2004.

Cultivar	Source	Type	Color
Alaska	Berbee	Asiatic	white
Avignon	Berbee	Asiatic	orange
Batist	Berbee	Asiatic	white
Brunello	Berbee	Asiatic	orange
Cannes	Berbee	Asiatic	salmon
Chianti	Berbee	Asiatic	pink
Cordelia	Berbee	Asiatic	yellow
Loreto	Berbee	Asiatic	orange
Menton	Berbee	Asiatic	salmon
Monte Negro	Berbee	Asiatic	red
Montreaux	Berbee	Asiatic	pink
Navona	Berbee	Asiatic	white
Sunray	Berbee	Asiatic	
Umbria	Berbee	Asiatic	white
Vivaldi	Berbee	Asiatic	pink
Ibarra	Gloeckner	Oriental	pink
Pollyanna	Gloeckner	Oriental	yellow
Toro	Gloeckner	Oriental	orange
Toronto	Gloeckner	Oriental	pink
Acapulco	Berbee	Oriental	pink
Barbaresco	Berbee	Oriental	pink
Casa Blanca	Berbee	Oriental	white
Noblesse	Berbee	Oriental	pink
Star Gazer	Berbee	Oriental	red
White Star Gazer	Berbee	Oriental	white

**Table 2.** Description of hybrid lilies grown an observational plantiug in pine bark in containers at the North Mississippi Research & Extension Center in 2004.

Cultivar	Source	Type	Color
Archimedis	Zabo	Asiatic	yellow
Botticelli	Zabo	Asiatic	orange
Don Camillo	Zabo	Asiatic	yellow
Makiko	Zabo	Asiatic	peach
New Orleans	Zabo	Asiatic	pink
Quinta	Zabo	Asiatic	orange
Renoir	Zabo	Asiatic	white
Tinos	Zabo	Asiatic	red/ylw
Tsjaikovski	Zabo	Asiatic	pink
Action	Zabo	Oriental	red
Alessia	Zabo	Oriental	white/ylw
Anais Anais	Zabo	Oriental	white/ylw
Baluga	Zabo	Oriental	white
Calvados	Zabo	Oriental	pink
Candle Glow	Zabo	Oriental	yellow
Charente	Zabo	Oriental	yellow
Comoro	Zabo	Oriental	yellow
Corso	Zabo	Oriental	pink
Crystal Blanca	Zabo	Oriental	white
Dordogne	Zabo	Oriental	red
Easly	Zabo	Oriental	yellow
First Arrival	Zabo	Oriental	white
Go for Gold	Zabo	Oriental	yellow
Legend	Zabo	Oriental	white/yellow
Malibu	Zabo	Oriental	white/yellow
Marcanti	Zabo	Oriental	pink
May Tay	Zabo	Oriental	white
Molfetta	Zabo	Oriental	pink
Mondriaan	Zabo	Oriental	pink/ylw
Nottingham	Zabo	Oriental	white
Quick Silver	Zabo	Oriental	white
Revolution	Zabo	Oriental	yellow
Rialto	Zabo	Oriental	white
Ribera	Zabo	Oriental	pink
Rimini	Zabo	Oriental	pink
Salinas	Zabo	Oriental	red
Shandong	Zabo	Oriental	pink
Shocking	Zabo	Oriental	red/green
Siesta Time	Zabo	Oriental	pink
Solaia	Zabo	Oriental	pink
Valparaiso	Zabo	Oriental	yellow

Veronese	Zabo	Oriental	yellow
Xotica	Zabo	Oriental	pink/ylw
Birgi	Zabo	LA hybrid	pink
Cavalese	Zabo	LA hybrid	pink
Courier	Zabo	LA hybrid	white
Ercolano	Zabo	LA hybrid	white
Freya	Zabo	LA hybrid	yellow
Kelso	Zabo	LA hybrid	yellow
Pavia	Zabo	LA hybrid	yellow
Rousseau	Zabo	LA hybrid	salmon
Serrada	Zabo	LA hybrid	yellow
Strasbourg	Zabo	LA hybrid	pink
Swansea	Zabo	LA hybrid	orange
Timaru	Zabo	LA hybrid	white
Twister	Zabo	LA hybrid	orange

**Table 3.** Days to harvest, stem diameter, stem length, and number of flowers of Asiatic lilies grown in field beds.

Cultivar	Days to harvest	Stem diameter cm	Stem length cm	Number of flowers
Umbria	72.4 a <sup>z</sup>	0.84 e	51.3 a	4.9 ef
Chianti	66.1 b	0.83 ef	35.3 fg	6.4 bc
Sunray	65.8 b	0.92 c	34.1 g	6.3 b-d
Cannes	65.4 b	1.30 a	40.4 de	6.5 a-c
Montreaux	64.8 bc	0.93 c	41.5de	3.9 g
Batist	63.0 cd	0.85 de	42.8 c-e	4.9 ef
Ibarra	61.9 de	0.83 e	48.3 ab	2.8 h
Cordelia	60.4 ef	0.94 bc	47.0 a-c	7.4 a
Menton	59.4 f	0.92 c	44.6 b-d	6.9 ab
Pollyanna	58.7 f	0.68 g	40.3 de	2.3 h
Navona	56.5 g	0.76 f	33.1 g	5.3 de
Vivaldi	56.2 g	0.94 bc	39.8 ef	5.6 c-e
Monte Negro	54.5 gh	0.91 cd	42.3 de	5.4 de
Toronto	54.1 h	1.00 b	50.2 a	6.6 a-c
Toro	53.5 h	0.84 e	48.5 ab	2.5 h
Avignon	49.5 i	0.99 b	43.4 c-e	6.7 ab
Loreto	49.2 i	0.91 cd	40.4 de	4.0 fg

<sup>z</sup> Means with the same letter do not differ at the 5% significance level by Fisher's Protected LSD.

**Table 4.** Days to harvest, stem diameter, stem length, and number of flowers of Oriental and L.A. Hybrid lilies grown in field beds.

Cultivar	Class	Days to harvest	Stem diameter cm	Stem length cm	Number of flowers
Alliance	Oriental	85.4 a <sup>z</sup>	0.79 a	35.7 de	3.4 b
Noblesse	Oriental	85.2 a	0.54 c	31.2 e	2.4 b-d
Casa Blanca	Oriental	85.0 a	0.76 ab	38.9 b-d	1.7 d
Siberia	Oriental	81.7 b	0.77 a	37.4 cd	2.4 cd
Stargazer	Oriental	81.2 b	0.77 a	43.0 b	5.3 a
Acapulco	Oriental	71.3 c	0.80 a	52.7 a	5.3 a
Barbaresco	Oriental	68.5 d	0.69 b	41.7 bc	3.1 bc
Golden Torch	L.A. Hybrid	56.6 a	0.98 a	53.1 b	5.6 a
Fangio	L.A. Hybrid	54.9 a	0.88 b	60.3 a	4.6 b

<sup>z</sup> Means with the same letter do not differ at the 5% significance level by Fisher's Protected LSD.

**Table 5.** Non-replicated data for Asiatic and O.T. hybrid lilies grown in crates with a pine bark media; days to harvest, stem diameter, stem length, and number of flowers of Asiatic lilies grown in field beds. This is the average growth response of 5 bulbs not subjected to statistical analysis.

Cultivar	Class	Days to harvest	Stem diameter cm	Stem length cm	Number of flowers
Amarone	Asiatic	53	1.0	60.3	6
Archimedis	Asiatic	62	1.0	59.3	3.7
Botticelli	Asiatic	62	1.3	85.5	5.7
Don Camillo	Asiatic	62	1.3	62.3	6.2
Makiko	Asiatic	51	0.9	62.1	5.5
New Orleans	Asiatic	62	0.9	54.5	5.2
Quinta	Asiatic	54	1.2	62.9	4
Renoir	Asiatic	57	1.0	53.5	5.2
Tinos	Asiatic	56	1.0	66.8	6.2
Tsjaikouski	Asiatic	58	1.0	57.3	3.5
Amarone	Asiatic	53	1.0	60.3	6
Archimedis	Asiatic	62	1.0	59.3	3.7
Botticelli	Asiatic	62	1.3	85.5	5.7
Don Camillo	Asiatic	62	1.3	62.3	6.2
Makiko	Asiatic	51	0.9	62.1	5.5
Comoro	O.T. hybrid	74	1.0	71.1	3.5
Easly	O.T. hybrid	53	1.0	64.0	4.3
Malibu	O.T. hybrid	62	1.0	76.8	5.2
Shocking	O.T. hybrid	71	1.1	93.0	6

**Table 6.** Non-replicated data for Oriental lilies grown in crates with a pine bark media; days to harvest, stem diameter, stem length, and number of flowers of Asiatic lilies grown in field beds. This is the average growth response of 5 bulbs not subjected to statistical analysis.

Cultivar	Days to harvest	Stem diameter cm	Stem length cm	Number of flowers
Action	84	0.9	62.5	5.0
Alessia	81	1.0	58.0	6.7
Anais Anais	75	0.9	78.5	6.5
Calvados	79	1.0	46.4	4.7
Candle Glow	62	0.8	54.5	4.0
Charente	71	1.0	63.3	3.2
Ciceron	79	0.8	61.4	4.2
Corso	80	0.9	63.6	4.4
Crystal Blanca	91	1.0	66.3	5.3
Dordogne	75	0.7	68.9	3.5
Faros	75	0.9	67.8	3.2
First Arrival	75	1.0	75.1	8.0
Go for Gold	57	1.0	56.4	3.5
Ice Dancer	87	0.8	51.0	2.2
Legend	79	1.0	73.5	6.3
Marcanti	79	0.9	65.3	3.5
May Tay	88	1.0	66.8	6.0
Molfetta	80	0.8	53.6	3.0
Mondriaan	79	0.9	79.5	5.0
Nottingham	82	1.0	70.3	3.7
Quick Silver	75	0.7	47.0	3.0
Revolution	62	1.2	58.0	5.5
Rialto	75	0.8	66.1	4.2
Ribera	75	0.9	80.8	5.0
Rimini	75	1.1	76.5	7.2
Salinas	75	0.8	74.1	5.2
Shandong	75	0.8	63.5	4.0
Siesta Time	77	0.9	57.9	3.4
Solaia	72	1.0	88.8	9.3
Valparaiso	75	1.1	75.9	4.0
Veronese	72	1.1	75.8	5.5
Xotica	81	1.2	55.1	4.7