

THE
Camellia
REVIEW

A Publication of the Southern California Camellia Society



Camellia Azalea

Southern California Camellia Society, Inc.

An organization devoted to the advancement of the camellia for the benefit of mankind—
physically, mentally and inspirationally.

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THE CAMELLIA REVIEW

Mel Belcher, Editor

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CHANGE OF ADDRESS— Notify the Secretary at once (PLEASE!).

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COVER PHOTO

Camellia Azalea

Photo by Gene Phillips,
Savannah, Georgia

Read Brad King's article beginning on page 4

AN INVITATION TO JOIN THE SOUTHERN CALIFORNIA CAMELLIA SOCIETY

The Southern California Camellia Society will welcome you as a member.

Annual membership — \$25.00 Includes subscription to *The Camellia Review* (three issues per year).

New Member	\$25.00	Sponsoring Member	\$50.00
Regular Member	\$25.00	Sustaining Member	\$100.00
		Patron Member	\$150.00

Send payment for dues to the Treasurer/Membership Chairman.

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2006 Camellia Nomenclature with over 150 pages describing more than 4,00 varieties is available at a cost of \$12 per copy mailed to United States address and \$14 per copy if mailed outside the US. Copies can be ordered by sending a check payable to

Southern California Camellia Society
c/o Bobbie Belcher,
40641 Via Amapola, Murrieta, CA 92562.

THOUGHTS FROM THE EDITOR

Over the past few months I have been reminiscing about past activities as they relate to and support the writing of my memoir. To allay any questions, no, it will not be on the book stands or included in *The Camellia Review*. I hope merely to tell the grandkids what "Gramps" has been up to during his 80+ years superimposed over the transcendent cultural differences from the Sand Hills of Oklahoma to their 2007 culture experiences in La Verne, California.

In that context and, since this is the last issue of *The Review* for this camellia season, I want to reminisce about happenings this past camellia year. It has been a year of strange weather, hot then cold then hot as well as being the driest year on record. It appears that most camellia plants have been somewhat confused since blooms have appeared on an unexpected schedule. Some varieties have bloomed six to eight weeks later than normal. It appears that the Kings, Grays, Gilfoys, Fagundos, Harrisons and Mittags constitute a formidable wave of competition for some of the "older timers."

Again this year we published articles from the archives and, as usual, that information transcended time and is as fresh and vital as if written today. Thanks again to Jim McQuiston for supplying many of these articles.

Thanks, too, to Brad King, our perennial Southern California Camellia Society President, for his outstanding leadership and for the many articles he has submitted for publication in *The Review*. These are greatly appreciated. I think everyone will enjoy reading his articles about the Camellia Azalea and his hybridizing work with it. This issue highlights Camellia Azalea by its gracing the front cover.

—Mel Belcher

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A garden is never so good as it
will be next year.

—Thomas Cooper

What is a weed? I have heard it said that
there are sixty definitions. For me, a weed is a
plant out of place.

—Donald Culross Peattie

What is a weed? A weed is a plant whose
virtues have not yet been discovered.

—Ralph Waldo Emerson

We come from the earth, we return to the
earth, and in between we garden.

WELCOME NEW MEMBERS

Adele Ellis Arrowsmith
3200 W. Riverside Drive, Unit 1
Burbank, CA 91505

Florence Crowder
1149 Cockerham Road
Denham Springs, LA 70026

Wen Pihm Wang
136 N. Lincoln Place
Monrovia, CA 91016

•••••

I perhaps owe having become a painter
to flowers.
—Claude Monet

We can complain because rose bushes have thorns, or
rejoice because thorn bushes have roses.
—Abraham Lincoln

Earth laughs in flowers.
—Ralph Waldo Emerson

CAMELLIA STATIONERY

Our beautiful camellia notecards are still available in sets of eight for \$6.00 including tax and shipping. Folks who use them and re-order tell us how truly lovely they are. They make wonderful gifts for your fellow camellia lovers or those you are trying to get interested in this great hobby! You can even order them for your own use. They also look beautiful in frames. Cards can be ordered through Dorothy Grier, 13229 Pipeline Avenue, Chino, CA 91710 (909) 628-1380. Make your check payable to SCCS.

If any camellia society would like to use these cards as fund raisers, orders for 25 or more sets are priced at \$5.00 each, including tax and shipping.

HYBRIDIZING WITH *CAMELLIA AZALEA*

Bradford King
Arcadia, California

C. azalea was first collected in 1984 by Wei and rediscovered by Gao in the late 1990's. It has some physical characteristics similar to azaleas and is exciting because it blooms from summer to fall and can bloom all year! This makes *C. azalea* a very valuable parent in the search for a continuously blooming landscape camellia. The small flowers are an attractive bright red with 7 to 9 petals. The leaves are long and narrow with rounded tips. They are also smooth including around the leaf edge. The mid-vein is raised. The plant grows into a three-foot shrub that may be two and a half feet wide and, surprisingly, enjoys hot (90 degree) summers. Seeds also may require some warm weather in order to germinate.

Currently I have several *C. azalea* grafts in progress but no plants. I had to acquire *C. azalea* pollen from Longwood Gardens in Pennsylvania. One shipment of pollen was collected July 2006 and shipped to me after my camellias were bloomed out. I froze the two capsules inside a small plastic bag and defrosted them five months later to make controlled crosses with early blooming japonicas like 'Tama-no-Ura', 'Tama-Americana', 'Kramer's Supreme' and 'San Dimas'. I also pollinated *C. sasanqua* 'Dazzler', 'Jean May', 'Shish Gashira' and 'Yuletide'. The failure of these is most likely due to using frozen pollen, but cool weather in December when the crosses were made could also be a contributing factor. Gao has suggested that very warm temperatures may be required for successful fertilization. In *C. azalea*'s native China in Guangdong province, the weather is very hot during August and September when major flower production occurs. Gao recommends that the seed parent remain in a warm environment for ten days or more after pollination.

In late December 2006, I received additional pollen from Longwood

Gardens. Fifty-eight controlled crosses were made. Ten viable seed pods have developed. This success rate of 17 percent is lower than the 25 percent or greater obtained when crossing within species, such as two japonica varieties. For example, 'Magnoliaeflora' pollinated with 'Mrs. George Bell' had a success rate of 60 percent this year.

The crosses I made on 'Narumigata', 'Shishi Gashira' and 'Kanjiro' failed, leaving us wondering if *C. azalea* does or does not cross with *C. sasanqua*. *C. azalea* crosses with 'Cupcake', a non-reticulata hybrid, were successful. However, I have not had the opportunity to cross *C. azalea* with any *C. reticulata* because no mature flower buds have been available when I have had *C. azalea* pollen.

It is known, however, that *C. azalea* crosses are possible with *C. japonica*. My successful seed pods were on 'Tama-no-Ura', 'Tama-Americana', 'Tama Peacock', 'Red Hots' and 'Red Devil' (a sibling of 'Red Hots').

In November 2005 I was given one *C. azalea* flower and from the pollen I made 14 controlled crosses, which resulted in three seed pods. Two developed on 'Tama-no-Ura' and one on 'Egao'. I secured the seed pods in used nylon stockings so that when they opened the seeds would be retained. While collecting the seeds on June 17, 2006 I dropped and lost the last seed from 'Egao'. My tortured cries were heard throughout the neighborhood that day! The two 'Tama-no-Ura' pods opened that day and produced six seeds. I put these seeds in a closed lid plastic jar "greenhouse" composed of moist peat moss and placed the container outside in the shade. The first two seeds germinated in three months. In the middle of September they were each placed in separate one-gallon pots.

They are clearly marked and have received bi-weekly liquid starter fertilizer (Miracle Gro 4-12-4).

Two months later in November I found that two more seeds had germinated and had produced several leaves. These were each placed in one-gallon pots and covered by clear plastic bags to provide protection as well as moisture control. These were not fertilized. Ten months later the final two seeds germinated but lacked adequate size to be potted. I expect that with the warmer weather of late spring and summer that they will develop and become healthy plants.

The four seedlings planted in the fall are each 5 to 6 inches tall with at least three new leaves. The leaves are small but more round than 'Tama-no-Ura' and are similar to their pollen parent *C. azalea*. The leaves also have a smooth surface and edge with a slightly raised mid-vein that is similar to *C. azalea*.

I have concluded that *C. azalea* crosses with *C. japonica* and non-reticulata hybrids. However, it is unclear if it crosses with *C. reticulata* and *C. sasanqua*.

My current crosses indicate that some foliage characteristics are inherited from *C. azalea*. This offers promise and hope for long lasting

blooms.

Dr. Harbage of Longwood Gardens has reported in the 2003 American Camellia Yearbook, page 11. that "At any one time a Camellia Azalea plant can have shoots just beginning a new growth flush, shoots in the middle of a growth flush, shoots completing a growth flush setting vegetative and/or flower buds and shoots with flowers open". "The result of this Asynchronous shoot development is that flowers are continuously produced throughout the year."

Will this continuous growth habit be inherited from *C. azalea*? Will the 'Tama-no-ura' picotee border be inherited? We know that at least eight 'Tama-no-Ura' progeny have genetically acquired the white border. I assume that blooms will be red, but what shade? I expect a small single flower, but what shape? The major mystery is still to be discovered—will they bloom continuously? I have hope! Now I hope to have the patience and resolve to care for them for the next seven years in order to find the answers to all these questions.

Editor's note: Our cover photo was taken by Gene Phillips in June when the temperature was almost 100° in Savannah, Georgia.

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1997 Queensberry Road
Pasadena, California 91104-3351.

CAMELLIA SOCIETY OF KERN COUNTY

59th Annual Show

March 3 and 4, 2007

Japonica—Large/Very Large

Best Single	'Swan Lake'	Harriet Simonsen
Runner-up Single	'Elegans Supreme'	Mel & Bobbie Belcher
Court of Honor Single	'Elegans Splendor'	Doris Dermody
Best Tray of 3	'Showtime'	James Fitzpatrick
Runner-up Tray of 3	'Elegans Supreme'	Mel & Bobbie Belcher
Court of Honor Tray of 3	'Royal Velvet'	Don & Marilee Gray

Japonica—Medium

Best Single	'Cherries Jubilee'	George & Karen Harrison
Runner-up Single	'Firedance Var.'	Marvin & Virginia Belcher
Court of Honor Single	'Cloisonne'	Marvin & Virginia Belcher
Best Tray of 3	'Haru-No-Utena'	Don & Marilee Gray
Runner-up Tray of 3	'Firedance Var.'	Marvin & Virginia Belcher
Court of Honor Tray of 3	'Midnight'	Helen Maas

Japonica—Small

Best Single	'Red Hots'	Jane Brady
Runner-up Single	'Tinker Bell'	George & Karen Harrison
Court of Honor Single	'Pink Perfection'	Marvin & Virginia Belcher
Best Tray of 3	'Red Hots'	Jane Brady
Runner-up Tray of 3	'Covina'	Jodie De Marah
Court of Honor Tray of 3	'Hishi-Karaito'	Marvin & Virginia Belcher

Japonica—Miniature

Best Single	'Lemon Drop'	Don & Marilee Gray
Runner-up Single	'Lemon Drop'	Doris Dermody
Court of Honor Single	'Little Michael'	Mel & Bobbie Belcher
Best Tray of 3	'Grace Albritton'	Julius & Dorothy Christinson
Runner-up Tray of 3	'Man Size'	Mel & Bobbie Belcher

Reticulata or Reticulata Hybrid

Best Single	'Frank Houser Var.'	Barbara Timberlake
Runner-up Single	'Frank Houser'	Don & Marilee Gray
Court of Honor Single	'Valley Knudsen'	Don & Marilee Gray
Best Tray of 3	'Valley Knudsen'	Don & Marilee Gray
Runner-up Tray of 3	'Ruta Hagmann'	Mel & Bobbie Belcher
Court of Honor Tray of 3	'Emma Gaeta Var.'	Don & Marilee Gray

Non-Reticulata Hybrid

Best Single	'Lucky Star'	Don & Marilee Gray
Runner-up Single	'Angel Wings'	Mel Canfield
Court of Honor Single	'Spring Daze'	Marvin & Virginia Belcher
Best Tray of 3	'Lucky Star'	James Fitzpatrick
Runner-up Tray of 3	'Freedom Bell'	Marvin & Virginia Belcher
Court of Honor Tray of 3	'Coral Delight Var.'	Don & Marilee Gray

Species

Best	'Star Above Star'	George & Karen Harrison
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Collector's Tray of 3 Mixed Varieties

Best	'Queen Bee', 'Nicky Crisp', 'Little Michael'	Don & Marilee Gray
Runner-up	'Anticipation Var.', 'Debbie', 'Sweet Jane'	Don & Marilee Gray
Court of Honor	'Carter's Sunburst Blush', 'Oo- La-La', 'Tinkerbelle'	George & Karen Harrison

Special Culture

Best	'Haru-No-Utena'	Don & Marilee Gray
Runner-up	'Royalty'	Mel & Bobbie Belcher
Court of Honor	'Harold L. Paige'	Don & Marilee Gray

Novice**Large/Very Large**

Best	'Carter's Sunburst'	Robert Patterson
Runner-up	'C. M. Wilson'	Chris Boydon
Court of Honor	'Marie Bracey'	Robert Patterson

Medium

Best	'Pink Wings'	Betty Wachob
Runner-up	'Pink Frost'	Beverly Scanlon
Court of Honor		Richard Armaya

Small or Miniature

Best	'Pink Perfection'	Chris Boydon
Runner-up	'Pink Perfection Var.'	Chris Boydon

Retic or Non-Retic

Best	'High Fragrance'	Trent McGraw
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**CAMELLIA SOCIETY OF SACRAMENTO****83rd Annual Show****March 3 and 4, 2007**

Best Flower of Show	'Mark Alan'	Bill & Bev Allman
Best Sweepstakes		Bob & Linda Ehrhart
Runner-up Sweepstakes		Don & Mary Bergamini

Japonica—Very Large

Best Single	'Mark Alan'	Bill & Bev Allman
Best Runner-up	'Elaine's Betty'	Don & Joan Lesmeister
Best Tray of 3	'Royal Velvet Var.'	Bob & Linda Ehrhart
Best Tray of 5	'Grand Prix'	Larry & Nancy Pitts

Japonica—Large

Best Single	'Nuccio's Jewel'	Larry & Nancy Pitts
Runner-up Single	'Jennie Mills'	Art & Chris Gonos
Best Tray of 3	'Firedance Var.'	Bob & Linda Ehrhart

Japonica—Medium

Best Single	'Red Devil'	Don & Joan Lesmeister
Runner-up Single	'C. M. Hovey'	Cynthia Chuang
Best Tray of 3	'Chie Tarumoto'	Jackie Randall
Best Tray of 5	'Firedance Var.'	Jackie Randall

Japonica—Small

Best Single	'Demi-Tasse'	Don & Joan Lesmeister
Runner-up Single	'Kristy Piet'	Bob & Linda Ehrhart
Best Tray of 3	'Little Babe Var.'	Art & Chris Gonos
Best Tray of 5	'Something Beautiful'	Art & Chris Gonos

Japonica—Miniature

Best Single	'Tom Thumb'	Art & Chris Gonos
Runner-up Single	'Wilamina'	Tony & Natalie Miranda
Best Tray of 3	'Fircone Var.'	Gordon & Barbara Goff

Best Tray of 11 Japonica	'Sea Foam'	Bob & Linda Ehrhart
Best Tray of 11 Reticulata	'Valentine Day Var.'	Bob & Linda Ehrhart
Reticulata or Reticulata Hybrid—Very Large		
Best Single	'Frank Houser Var.'	Don & Joan Lesmeister
Runner-up Single	'W. P. Gilley Var.'	Art & Chris Gonos
Best Tray of 3	'Frank Houser Var.'	Don & Joan Lesmeister
Best Tray of 5	'Lauretta Feathers'	Bob & Joan Lesmeister
Reticulata or Reticulata Hybrid—Large		
Best Single	'Crinoline'	Bob & Linda Ehrhart
Runner-up Single	'Valley Knudsen'	Gordon & Barbara Goff
Non-Reticulata Hybrid—Large		
Best Single	'Hot Stuff'	Tony & Natalie Miranda
Runner-up Single	'Julie Var.'	Bob & Linda Ehrhart
Best Tray of 3	'Bett's Supreme'	Don & Joan Lesmeister
Best Tray of 5	'Waltz Time Var.'	Don & Joan Lesmeister
Non-Reticulata Hybrid—Medium		
Best Single	'Spring Daze'	Larry & Nancy Pitts
Runner-up Single	'Les Jury'	Don & Joan Lesmeister
Best 5 Different Miniature or Small Blooms		
	'Ave Maria', 'Mikey B.', 'Jared', 'Joshua Fenska', 'Baby Pearl'	Don & Mary Bergamini
Best 5 Different Blooms	'Tomorrow's Dawn', 'Mrs. D. W.', 'Davis Spec.', 'Sir Robert Muldoon', 'Terrell Weaver', 'Larry Piet'	Larry & Nancy Pitts
Best 3 Different Blooms	'Crinoline', 'Nuccio's Jewel', 'Robin's Cherry'	Larry & Nancy Pitts
Seedling		
Best		Gordon & Barbara Goff
1st Runner-up		Bob & Linda Ehrhart
2nd Runner-up		Larry & Nancy Pitts
Best Spray or Stem	'Magnoliaeflora'	Art & Chris Gonos
Best Yellow/Cream Bloom	'Brushfield's Yellow'	Helmuth & Leone Wildemann
Best Fragrant Bloom	'High Fragrance'	Bob Johnson
Best Old Timer's Bloom	'Kramer's Supreme'	Barbara Tuffli
Best White Japonica	'Ragland Supreme'	Tony & Natalie Miranda
Best Sacramento Member Bloom	'Candy Cane'	LuAnn Watkins
Youth		
Best Large Japonica	'Adolphe Audusson Var.'	Zac Warren
Best Medium Japonica	'Herme'	Zac Warren
Best Small Japonica	'Pink Perfection'	Zac Warren
Best Non-Reticulata	'Autumn Jewel'	Zac Warren



To dig one's own spade into one's own earth! Has life
anything better to offer than this.
—Beverly Nichols!

NORTHERN CALIFORNIA CAMELLIA SOCIETY

Show Results 2007

Best Flower in Show	'Frank Houser Var.'	Don & Joan Lesmeister
Best Sweepstakes—114 Blue Ribbons		Bob & Linda Ehrhart
Runner-up Sweepstakes—81 Blue Ribbons		Don & Mary Bergamini
Award of Excellence—		
Most Blue Ribbons on Head Table		Bob & Linda Ehrhart
Japonica—Very Large		
Best Single	'Royal Velvet'	Tony & Natalie Miranda
Runner-up Single	'Swan Lake'	Bob & Joanne Logan
Best Tray of 3	'Rena Swick Var.'	Bob & Linda Ehrhart
Best Tray of 5	'Royal Velvet'	Jackie Randall
Japonica—Large		
Best Single	'Bobby Fain Var.'	Bob & Linda Ehrhart
Runner-up Single	'Lady Laura'	Harlan Smith
Best Tray of 3	'Firedance Var.'	Hal & Deane Burch
Japonica—Medium		
Best Single	'Betty Foy Sanders'	Bob & Linda Ehrhart
Runner-up Single	'Firedance Var.'	Tony & Natalie Miranda
Best Tray of 3	'Alta Gavin'	Hal & Deane Burch
Best Tray of 5	'Junior Prom'	Don & Joan Lesmeister
Japonica—Small		
Best Single	'Daisy Engleton	Don & Mary Bergamini
Runner-up Single	'Little Susie'	Don & Mary Bergamini
Best Tray of 3	'Black Tie'	Bob & Linda Ehrhart
Miniature Blooms		
Best Single	'Little Michael'	Hal & Deane Burch
Runner-up Single	'Botan-Yuki'	Bob & Linda Ehrhart
Best Tray of 3	'Night Rider'	Julie Vierra
Best Tray of 5	'Little Slam Var.'	Bob & Joan Steele
Reticulata or Reticulata Hybrid		
Best Single over 5 in.	'Frank Houser Var.'	Don & Joan Lesmeister
Runner-up over 5 in.	Miss Tulare'	Bob & Linda Ehrhart
Best Tray of 3 over 5 in.	'Frank Houser Var.'	Don & Joan Lesmeister
Best Tray of 5 over 5 in.	'Frank Houser Var.'	Jackie Randall
Best Single under 5 in.	'Larry Piet'	Don & Mary Bergamini
Runner-up under 5 in.	'Crinoline'	Hal & Deane Burch
Best Tray of 3 under 5 in.	'Betty Ridley'	Art & Chris Gonos
Best Tray of 5 under 5 in.	'Nuccio's Ruby'	Fran Zunigen
Non-Reticulata Hybrid		
Best Single	'Lucky Star'	Don & Joan Lesmeister
Runner-up Single	'Tom Perkins'	Bob & Joan Lesmeister
Best Tray of 3	'Hot Stuff'	Bob & Joanne Logan
Best Tray of 5	'Hot Stuff'	Hal & Deane Burch
Best Tray of 9 Different Miniature or Small Blooms		Don & Mary Bergamini
Best Tray of 9 Different Blooms		Don & Joan Lesmeister
Best Tray of 3 Mixed Sizes		Barbara Bruener
Best Tray of 5 Different Japonicas		Bob & Linda Ehrhart
Best Large/Very Large Seedling		Bob & Linda Ehrhart
Best Medium Seedling		Cynthia Chuang
Best Miniature/Small Seedling		Bob & Linda Ehrhart

Best bloom named after**NCCS Member**

'David L. Feathers'

Bob & Linda Ehrhart

Youth

Best Japonica

'Chris Bergamini'

Bryanna Waters

Best other than Japonica

'Island Sunset'

Landon Waters

Novice

Best Single

'Miss Tulare'

Raymond & Texie McGowan

Runner-up Single

'Silver Waves'

Nancy McGowan

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SOUTHERN CALIFORNIA CAMELLIA COUNCIL**50th Annual Show, Descanso Gardens****February 24 and 25, 2007****Japonica—Large/Very Large**

Best Single

'Julia France'

Marvin & Virginia Belcher

Runner-up Single

'Royal Velvet'

Nancy Kress

Court of Honor Single

'Miss Charleston Var.'

Don & Marilee Gray

Best Tray of 3

'Royal Velvet Var.'

Tom & Dody Gilfoy

Runner-up Tray of 3

'Swan Lake'

Tom & Dody Gilfoy

Court of Honor

'Nuccio's Pink Lace'

Linda Tunner

Best Tray of 5

'Carter's Sunburst'

Dale & Mary Kay Mittag

Runner-up Tray of 5

'Katie Variegated'

Dale & Mary Kay Mittag

Court of Honor Tray of 5

'Royal Velvet'

Les & JoAnn Brewer

Special Culture

Best Single

'Miss Charleston Var.'

Don & Marilee Gray

Runner-up Single

'Royal Velvet'

Don & Marilee Gray

Court of Honor

'Owen Henry'

Don & Marilee Gray

Japonica—Medium

Best Single

'Betty Foy Sanders'

Mel & Bobbie Belcher

Runner-up Single

'Nuccio's Jewel'

Dale & Mary Kay Mittag

Court of Honor Single

'Firedance Var.'

Marvin & Virginia Belcher

Best Tray of 3

'Wildfire'

Doris Dermody

Runner-up Tray of 3

'Glen 40'

Dale & Mary Kay Mittag

Court of Honor Tray of 3

'Firedance Var.'

Don & Marilee Gray

Best Tray of 5

'Firedance Var.'

Marvin & Virginia Belcher

Runner-up Tray of 5

'Ed Combatalade'

Tom & Dody Gilfoy

Court of Honor Tray of 5

'Nuccio's Carousel'

Special Culture

Best Single

'Firedance Var.'

Don & Marilee Gray

Runner-up Single

'Maroon and Gold'

Brad & Lynn King

Court of Honor Single

'Cherries Jubilee'

Don & Marilee Gray

Japonica—Small

Best Single

'Tinker Bell'

George & Karen Harrison

Runner-up Single

'Tom Thumb'

Les & JoAnn Brewer

Court of Honor

'Black Tie'

Tom & Dody Gilfoy

Japonica—Miniature

Best Single

'Little Michael'

Don & Marilee Gray

Runner-up Single

'Shikibu'

Linda Tunner

Court of Honor

'Lemon Drop'

Bob & Mary Sheriff

Japonica—Small or Miniature

Best Tray of 3	'Black Tie'	Tom & Dody Gilfoy
Runner-up Tray of 3	'Lemon Drop'	Dale & Mary Kay Mittag
Court of Honor Tray of 3	'Pink Perfection'	Jac Fagundo
Best Tray of 5	'Black Tie'	Tom & Dody Gilfoy
Runner-up Tray of 5	'Pink Perfection'	Dale & Mary Kay Mittag
Court of Honor Tray of 5	'Red Hots'	Marvin & Virginia Belcher

Japonica—Small or Miniature

Special Culture		
Best Single	'Firedance Var.'	Don & Marilee Gray
Runner-up Single	'Maroon and Gold'	Brad & Lynn King
Court of Honor Single	'Cherries Jubilee'	Don & Marilee Gray

Reticulata or Reticulata Hybrid

Best Single	'Frank Houser'	Marvin & Virginia Belcher
Runner-up Single	'Bev Piet Var.'	Rudy Blanco
Court of Honor Single	'Frank Houser Var.'	Rudy Blanco
Best Tray of 3	'Frank Houser Var.'	Rudy Blanco
Runner-up Tray of 3	'Frank Houser'	Les & JoAnn Brewer
Court of Honor Tray of 3	'Emma Gaeta Var.'	Rudy Blanco
Best Tray of 5	'Frank Houser'	Marvin & Virginia Belcher
Runner-up Tray of 5	'Emma Gaeta Var.'	Rudy Blanco
Court of Honor Tray of 5	'Valley Knudsen'	Linda Tunner

Special Culture

Best	'Larry Piet'	Don & Marilee Gray
Runner-up	'Frank Houser'	Don & Marilee Gray
Court of Honor	'Queen Bee'	Brad & Lynn King

Species

Best	'Chrysantha'	Michael Mathos
Runner-up	'Chekiangoleosa'	George & Karen Harrison
Court of Honor	'Shishi-Gashira'	Gene & Elynor Baughman

Old Timer's Bloom

Best	'Glen 40;	Dale & Mary Kay Mittag
Runner-up	'Drama Girl'	Tom & Dody Gilfoy
Court of Honor	'Elegans Chandler'	Dale & Mary Kay Mittag

Collector's Tray of 3 Mixed Varieties

Best Tray	'Queen Bee', 'Prima Ballerina', 'Little Michael'	Don & Marilee Gray
Runner-up Tray	'Moonlight Bay', 'Sunset Dreams', 'Buttons 'n Bows'	Don & Marilee Gray
Court of Honor Tray	'Harold L. Paige', 'Betty Foy Sanders' 'Man Size'	Nancy Kress

Best Fragrant Bloom'

High Fragrance'	Julius & Dorothy Christinson
	Rudy Blanco

Novice

Best Single Large/Very Large	'Mathotiana'	Kathy Volpi
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Intermediate

Best Medium, Small, or Miniature	'Debutante'	Jeanne Walker
Runner-up	'Hishi-Karaito'	Jeanne Walker
Court of Honor	'Debutante Var.'	Jeanne Walker

Award of Merit

Don & Marilee Gray

SAN FRANCISCO PENINSULA CAMELLIA SOCIETY

40th Annual Show

Best bloom in show	'Lauretta Feathers'	Larry & Nancy Pitts
Best Sweepstakes		Don & Mary Bergamini
Runner-up Sweepstakes		Bob & Linda Ehrhart
Japonica		
Best Single Large	'Silver Cloud'	Larry & Nancy Pitts
Runner-up Very Large	'Royal Velvet'	Larry & Nancy Pitts
Best Large	'Mario Bergamini'	Don & Mary Bergamini
Runner-up Large	'Firedance Var.'	Larry & Nancy Pitts
Best Medium	'Joy Kendrick'	Larry & Nancy Pitts
Runner-up medium	'Desire'	Barbara Tuffli
Best small	'Grace Albritton Blush'	Larry & Nancy Pitts
Runner-up small	'Little Babe Var.'	Larry & Nancy Pitts
Best Miniature	'Baby Pearl'	Don & Mary Bergamini
Runner-up Miniature	'Little Slam Var.'	Larry & Nancy Pitts
Reticulata		
Best Very Large	'Lauretta Feathers'	Larry & Nancy Pitts
Runner-up Very Large	'Frank Houser Var.'	Larry & Nancy Pitts
Best Medium/Large	'Dr. Louis Polizzi	Bob & Linda Ehrhart
Runner-up Medium/Large	'Dobro'	Cam Ainsworth
Non-Reticulata Hybrid		
Best	'Water Lily Var.'	Larry & Nancy Pitts
Runner-up	'Island Sunset'	Don & Mary Bergamini
Trays of 3		
Best miniature/small	'Paper Dolls'	Bob & Linda Ehrhart
Best medium japonica	'Charles F. O'Malley'	Bob & Linda Ehrhart
Best large/very large japonica	'Elegans Chandleri'	Bob & Linda Ehrhart
Best reticulata	'Miss Tulare'	Larry & Nancy Pitts
Best Non-Reticulata	'First Blush'	Larry & Nancy Pitts
Best 3 Mixed Varieties		Don & Mary Bergamini
Trays of 5		
Best miniature/small	'Little Babe Var.'	Larry & Nancy Pitts
Best medium japonica	'Firedance Var.'	Don & Mary Bergamini
Best large/very large japonica	'Royal Velvet'	Larry & Nancy Pitts
Best reticulata	'Lauretta Feathers'	Larry & Nancy Pitts
Best tray of 9 different blooms		Larry & Nancy Pitts
Best japonica seedling		Bob & Linda Ehrhart
Best hybrid seedling		Don & Mary Bergamini
Best fragrant bloom	'Koto-No-Kaori'	Bob Johnson
Best Novice japonica	'Silver Tower'	Stephen Watson
Best Novice reticulata	'Howard Asper'	Helen Quilici
Best Novice Tray of 3	'C. M. Wilson'	Tina Isenberg
Best spray	'Elegans'	Fran Zurilgen

THE FRONTIERS OF CAMELLIA HYBRIDIZING

PART II

Bradford King
Arcadia, California

CLUSTER-FLOWERING HYBRIDS

The fine-leaved miniature cluster flowering hybrids have been popular with hybridizers since 1948 when J.C. Williams received an Award of Merit from the Royal Horticultural Society for 'Cornish Snow'. Hybridizers have found *C. rosaeflora* useful for developing pink flowers, *C. fraterna* for cluster flowers, *C. tsaii* for wavy leaves and *C. japonica* 'Kuro-tsubaki' for its black-red color.

Neville Haydon from New Zealand to continue the process of developing new miniature hybrids crossed *C. rosaeflora* with *C. tsaii* to get 'Baby Bear' and 'Baby Brother' In 1999 Nuccio's Nursery introduced 'Bunny Ears', a miniature pink semi double *C. rosaeflora* hybrid with "rabbit ears." Tomas Savige of New South Wales also used *C. rosaeflora* to develop fine hybrids including 'Wirlinga Princess', 'Wirlinga Bell' and 'Wirlinga Bride'.

In the 1990's Ray Garnet introduced the two *C. transnokoensis* hybrids, 'Sweet Jane' and 'Trans-tasman' that have clusters of blooms.

The frontier is to develop hybrid camellias with abundant cluster flowers that excel in the landscape and have distinctive qualities such as scent, yellow or apricot colors, unique foliage or a continuous blooming season.

There are several camellia species that have potential for hybridizers that may result in crosses with a combination of desirable characteristics. *C. transnokoensis* is a small abundant blooming white scented flower that often displays an attractive red spot on the petals. Crosses with larger flowers could make for excellent landscape varieties.

A hybridizer interested in developing yellow cluster flowers should explore *C. tunghinensis* as a parent because it produces single, small pale flowers in abundance.

Breeders seeking a very long or continuous flowering season could find *C. yunnanensis* a sound choice. It produces a small to medium white flower, has small and finely textured leaves, some scent and can set abundant buds. Its seed pods are purple-red and hang like Christmas tree ornaments when fully mature. Because it requires less humidity than other species it should do well in Southern California' inland climate areas. Since it has not been used extensively in hybridizing, its full potential has yet to be discovered.

A hybridizer seeking to use a larger flower with a lovely red flower should consider *C. chekiangoleasa*. It sets seeds readily and can be either a seed or pollen parent. While not a cluster type bloomer, it does have lots of flowers. In addition, it is reported to be resistant to common diseases, has cold tolerance and grows into a small tree. Japanese hybridizers have successfully crossed it with *C. japonica* to produce excellent red flowers. It has the same number of chromosomes as Japonica (2N=30). Hybridizers such as Dr. Parks, Gene Phillips and Tom Nuccio speculate that color breaks are possible from this species. Therefore, this species is a very strong candidate for a hybridizing program.

FOUR SEASON BLOOMS

Is four-season-blooms the final frontier? To my knowledge no one has reported developing a camellia hybrid that can bloom all year long. However, it is a real possibility. Gao, Parks and Du have identified a number of species that have very long if not continuous flowering seasons. The most promising species for this objective are *C. amplexicaulis*, *C. azalea* and the previously discussed *C. yunnanensis*.

C. amplexicaulis, a purplish red cupped flower with a very narrow white margin, blooms mainly in the summer and autumn. Under optimal conditions, it can bloom at any time. The petals are thick and fleshy and stamens are yellow and clustered and produce quantities of pollen. It has very large glossy dark green leaves. It sets seeds readily; therefore, it is an excellent candidate for hybridizing as either a seed or pollen parent.

The strongest candidate for producing four-season blooming hybrids is *C. azalea* with its single bright red flowers and bright shiny green leaves. *C. azalea* gets its name because it resembles the evergreen azalea and is compact, upright and dense in its growth pattern.

Gao Jiyin (American Camellia Yearbook 2005, p.61) wrote, "I have visited the native place of *C. azalea* four times (May, August, October, and January) and I could see the bright flowers of the species each time." Dr. James Harbage (2003 yearbook, p. 10) said "*C. azalea* has bloomed in virtually every month of the year here at Longwood Gardens (Pennsylvania)". He explains that this ever blooming ability is due to the fact that the plant can have shoots just beginning a new growth flush, shoots in the middle of a growth flush, shoots completing their growth that are setting buds and shoots with flowers. This asymmetrical growth pattern is unusual for camellias because the typical camellia has one or two growth flushes a year with the vegetative growth and flower buds developing about the same time. Dr. Harbage also reports in the same article that rooted cutting of *C. azalea* were significantly less successful than grafts. The grafted plants grew normally in producing

new foliage but at a slow rate. They had not had seeds set for them as of 2002. Therefore, they consulted with Professor Gao. He suggested that very warm temperatures might be required for successful fertilization.

On December 9, 2005 I received one *C. azalea* flower bud which had a small amount of pollen. I immediately made the following controlled crosses: 5 on 'Tama-No-Ura', 3 on 'Egao', and 1 on 'Tama Peacock'. In early June I had 3 seed pods growing well on 'Tama-No-Ura' and 1 on 'Egao'. On June 17 two seed pods opened on 'Tama-No-Ura'. Each had three seeds. These are the first pods to open this season. The third 'Tama-No-Ura' pod was missing and the 'Egao' pod was still green. All of these pods are the size of a thumbnail which is smaller than most of the other pods crossed with the varieties on 'Tama-No-Ura'. Therefore, crosses between *C. azalea* and *C. japonica* are indeed possible. However, I need to see if the seeds will germinate and to wait 7 years to discover if a long blooming season has been genetically transferred to any of the hoped for seedlings.

While it is difficult to obtain *C. azalea* plants, Longwood Gardens has pollen available for distribution to camellia hybridizers. I wrote and received pollen from Alan Petravich, Longwood Gardens, Horticulture Conservation Rd., Kennett Square, PA. 19348.

CONCLUSION

C. japonica has diversified into over 30,000 cultivars in many different sizes, forms and colors. The frontiers of hybridizing are in tapping the genetic potential of the camellia species.

You can bury a lot of troubles
digging in the dirt!

In the garden, my soul is sunshine.

CAMELLIAS IN BOTTOMLESS CONTAINERS

J. Carroll Reiners
Sacramento, California

Most of us who have grown camellias in containers have been aware that there are cautions for our specimens. When they are in small containers and are in shade and crowded while they grow, chores of water and feeding and protecting are least burdensome. When we determine which ones to retain in our gardens, the container sizes have been enlarged, but our chores have not really increased to the stage of harassment. Watering is still done in a "quantity" state; that and other care is still pampering, and we dare not neglect it.

I resolved my care chores by putting camellias in boxes placed on the ground, containers without bottoms. This was first of all a landscape issue, because I wanted a row of regularly spaced planter boxes. I did not plan to move them, but it was always possible, and the care I could give the boxed camellias proved to be exceptionally practical.

Watering was simpler, because it meant filling the container and also soaking the soil around the box. The plant could draw on two sources of water. Sending its roots below the container brought another advantage, that of plant stability; no more tipping in heavy winds. If just the ground surrounding the boxed plants got soaked, water still traveled upward to the camellias.

His arrangement had another effect; the facility with which I could control any tendency of the plant toward being pot-bound.

Since the roots extended into the ground below the container, the task

of root pruning became simply shoving a sharp spade into the ground at the perimeter of the container, into the soil below. This light root pruning, plus a heavy top vegetative pruning was necessary each year to keep the plants in good scale with the chosen container size.

I cut off camellias at seven to eight feet in eight. Vigor, bud set, and bloom size are very rewarding with these boxes.

Shifting the boxes is not as simple as it would be if they had bottoms, but if the roots are cut per directions given above, one edge of the container can be raised and a board pushed beneath the box; this acts as a sled for the moving operation. My plants were frequently moved and some were periodically turned to keep growth in balance, if the light came from one direction.

Camellias of only certain sizes and containers are being considered in this article. One and two gallon size containers are still treated by the crowded-quantity method in which many can be cared for at one time, and for this period of a camellia's growth, there is very little we can do to diminish the amount of regular care involved.

Ed note: For substantial numbers of plants in a small area, absolutely square containers closely-packed permit all water to fall into the containers. Open-bottom containers will drain into the ground, so the ground will still receive moisture.

From *The Camellia Bulletin*,
November 1963

All my hurts, my garden spade can heal.

—Ralph Waldo Emerson

Gardeners, I think, dream bigger dreams than
Emperors.

—Mary Cantwell

FERTILIZING CONTAINER-GROWN PLANTS

Dr. Cecil H. Eshelman
Sherman Oaks, California

The application of fertilizer to container-grown plants is a subject of some controversy among camellia growers. This is probably due to the special hazards involved when the wrong type or the wrong amount of fertilizer is applied. Due to the limited soil in the containers, this hazard is much greater than in the open ground where the roots are not confined and the chemical action of the fertilizer is less direct. I have tried most types of plant food including steer fertilizer and bovine blood plasma and have observed that most fertilizers, used in an amount short of root and foliage damage, provide a satisfactory degree of results. Our aim should be to provide the soil with the proper nutrients that will enable the plant to make normal growth, giving a satisfied plant with strong branches, green foliage and capable of producing blooms that are up to size for the variety.

The use of a commercial laboratory to analyze soil samples and determine deficiencies, followed by a fertilizer formula designed to restore the mineral balance is certainly the most desirable method. Most of the small collectors through experimentation should endeavor to learn their plant requirements, and as a result of such experience use the methods that they find best. Ed note: Analysis kits are available for use by the grower directly.

The physical structure of the soil mix should determine the strength and frequency of application of fertilizer. My camellias are grown in containers, which range in size from one-gallon cans to twenty-four inch boxes. Earlier, I used the soil mix of many wholesale growers, equal parts of sandy loam and peat moss. Later, I used two parts of partially decomposed pine shavings and three parts sandy loam. Both mixes provide looseness which enables the excess

water to leach through the container in minutes.

Because of looseness, the problem is to retain the minerals in normal amounts, and avoid, if possible, the fertilizer being flushed through the mixture each time the plant is watered.

I keep a generous pine wood shaving mulch on my plants the year around. This serves to retain moisture, to keep the roots cool and to provide a means of suspending the powdered organic fertilizer which is applied during the months of April and July. By applying the fertilizer on top of the mulch, the minerals release slowly and supply nearly constant nourishment.

This plant food is derived from organic sources. The nitrogen is supplied from blood and cottonseed meal rather than urea. There are various trace elements in this product which make the formula complete, safe, and entirely adequate to provide the plant with all of its requirements.

I have observed that, watering twice a week, it will take two months for the fertilizer to be used up when placed on the mulch. This is a longer period than if it were applied directly to the soil.

The April and July applications constitute the greater part of my fertilizing program. During the month of June, I add a weak solution of liquid organic fertilizer. This is given just preceding the second cycle of growth, because of the greatest demand by the plant at this time.

Each year following the heavy blooming time, I observe that my plants appear completely spent. The branches seem to lose their vigor, many leaves either drop or become mottled, and in general the plants appear to have deteriorated during the flowering period. Although this is not the time to accelerate growth; I have found a mild application of liquid

fertilizer, about January first, will reduce the spent appearance of the plants during the month of March, just prior to the spring growth period.

I follow the usual precautions that apply to all container-grown camellias. A few of the most important are worth repeating:

(1) Wait at least two years before feeding grafted plants.

(2) Use one-half the recommended

amount of any type of fertilizer, because with container culture the roots are in a small area.

(3) Regard the container area as the determining factor for the amount of plant food to use, not the size of the camellia.

From *The Camellia Bulletin*, July 1956

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OFF-SEASON GRAFTING By "That Character"

There have been pages and pages written on various methods of grafting. In trying to determine which method would be most successful for camellias I read everything I could get my hands on. I didn't find much on reducing losses when grafting scions received from the Southern Hemisphere (where the seasons are opposite to ours) as well as other parts of the world.

I was fortunate in getting many rare scions from Australia, New Zealand, England, Spain and Portugal as gifts, exchanges or purchases. It is heartbreaking to get a scion of a choice or rare variety and then it "poops out" on you. The cost of the scion and postage can be very expensive when you lose "a good one" to say nothing of your loss of time and the loss of your understock plant.

For several years I lost many, but I found what I considered the best way, so here are some of my findings. Making it as brief as possible the most important points are:

1. Instruct the person sending the scions not to write the name of the variety on the leaf but just put on a number, very lightly, with a ball point pen, or tie a tag on it. The more writing there is on a leaf the more damage is done to the leaf cell structure and the less chance you have of success.

Tags will increase the weight, and postage, considerably. If the number method is used they can send along a list of numbers and variety names on a separate piece of paper or in a separate letter.

2. Instruct the sender to place the scions in a light-weight polyethylene bag and partially fill it with water, then gently shake it around so that all of the leaves are thoroughly wet. Instruct them to then hold the bag upside down against a wall, drain the bag and gently press out the excess water and air, making sure not to fold or injure the leaves, and seal it so that it is absolutely air tight.

Do not have them place any other material in the bag such as cotton, peat moss or paper. IT KEEPS THEM TOO WET. In addition, paper is particularly bad as it is made from a process in which strong acids are used. When the scions are packed in dampened paper and then sealed in the bag the acid is released in minute amounts and if it is in contact with the scions for any length of time it will destroy the cambium and the scion will not take.

3. Have them sent by airmail in a container that is strong enough to protect the scions from being crushed.

4. When they arrive, immediately, if possible, remove them from the bag and cut off a small piece of stem with

a sharp knife. Take a rubber band and tie them into small bundles of three, four or five scions to each bundle with all of the newly cut ends even and place them butt down in a tall bottle that can be capped. Fill the bottle with cold water (not ice water) and let them stand for 15 minutes. Drain off all of the water except just enough for the ends of the scions (that should be resting on the bottom of the jar) to be covered. Cap tightly and then place in a refrigerator for at least six days—10 to 12 days is better—at a temperature of 34 to 36°. This treatment seems to help in changing the growth cycle.

5. Graft them any way you choose, but I found that the cleft graft worked best for me. I also found it absolutely necessary to take more time and care with each graft. I used a Hyde Extension Blade Handle that held a Shick razor blade to make my cuts in preparing the scion and the understock. I found it imperative that a very sharp instrument be used to make the cuts, and Shick razor blades fill the bill very nicely. They are inexpensive, especially if you use a Shick razor.

Insert the scion so the complete length (except 1/8 inch) of the cambium layer on both sides of the scion wedge match the cambium layer on both sides of the cleft in the stock. This takes very careful preparation and handling of both the scion and the understock. In addition, don't guess that the cambium layers are matching. Use a spot light and a magnifying glass to be sure. You will be surprised how many times you will have to readjust and rearrange the scion to make a perfect match.

Don't put the scion in on an angle and hope that it matches at one point—you need all the help that mother nature can give you, so do it the way of the best chance for success. Preparing the scion wedge, cut it so the outside of the wedge is on the side of the leaf node. It provides more energy than the opposite side.

While it is a good practice to cut

your wedge through a leaf node in order to help match the cambium layers, wood is generally so scarce that you cannot waste an eye.

In binding your scion into the understock use regular six-inch rubber grafting bands if you can obtain them. I found they were easier to use and much more successful than string, raffia, electric tape, etc., and they are much easier to apply and remove.

6. Before the graft is made, fill the container in which your stock plant is growing with a one-inch layer of fine dry sawdust. The sawdust keeps the moisture down around the roots, protects the scion and stock against mildew and fungus and also helps to keep your bottle down air tight. I advise putting the sawdust on before grafting as there is a danger of hitting and breaking off the scion if done after grafting.

It is also necessary to use clean sterilized bottles.

7. This method can be used any time of the year. If stock plants are in or about to be in a flush of new growth and the sap is rising, here is a simple trick I used many times to keep the stock from "bleeding":

Heat a soldering iron and carefully seal all of the newly exposed cut portion of the top of the stock, up to about 3/8 inch on both sides of the scion. If only one scion is placed, on one side of the cleft, carefully seal the opposite side of the cleft also. It is not necessary to burn or char it, just close the pores. Use no grafting wax or other sealer until you remove the graft from under the bottle and remove the tie. Then completely cover the union with Tree Seal or other sealer of your preference.

Don't be in a hurry to lift the bottle. Even after the scion and stock are callused, leave the bottle on until the new growth starts to push out. In many cases, because of the differences in seasons, you will find this to be longer than 12 to 18 months. Lift the bottle too soon, or too quickly, and the scion will drop its leaf. In "cracking"

the bottle, be sure to make your intervals between each stage at least three times as long as you usually would take. Each stage should not be more than 3/4" every three days. Sometimes it will take three weeks or more to get the bottle off completely. During the "cracking" period the humidity should be kept very high. Use a fine mist of water over the graft twice each day. I used a time clock, solenoid valve and fine mist nozzles to do this automatically in a cold frame during the entire "cracking" period as well as after the bottle is off.

This method was used on all scions I received for two years from the Southern Hemisphere and other parts of the world, and out of over 400 grafts I lost only 10.

Practice a few of these tricks. The only one that might be omitted, for scion shipments within this country, is the long refrigeration treatment.

There is considerable misunderstanding and hard feelings by many people about the shipment of plants from other parts of this country. Many do not realize that to ship camellias into many areas, plants must be bare rooted. Also, the plants that are shipped are usually fumigated and many end up destroyed as a result.

I believe the average collector is better off-plant-wise if he buys or begs

a scion and grafts it. There is no doubt that he will be a year or two behind where he would have been had he purchased a plant and had it shipped without damage. Generally, a shipped plant can arrive damaged by fumigation, root pruning, bare rooting, or poor packing and crating. This damage is not apparent immediately and usually the plant takes two to three years to recuperate, if at all.

Not only would he be better off by grafting scions, but his chances are twice as good because most scions that are sold have two or more eyes. If both take, then he has two plants-one for a friend.

Nurserymen who must build up a stock of new varieties, and average out losses can take the chance and buy plants to cut up for many grafts for the quick turnover. But not so with the collector. He cannot average out on a sick or weak plant. He has three strikes against him before he even gets up to bat. I dislike weak and sickly plants and taking a chance on throwing my money "down the drain." Although I always want to be ahead of the other fellow in putting a choice variety on the exhibition table, I strongly advocate purchasing scions and being a year or two behind in the race for blue ribbons and trophies.



All gardeners know better than other gardeners.

—Chinese Proverb

We come from the earth, we return to the earth
and in between we garden.

I garden, therefore I am.

I have never had so many good ideas day after day
as when I worked in the garden.

—John Erskine

As the garden grows, so does the Gardener.

Gardening is a way of showing that you believe in
tomorrow.

FOLIAR FERTILIZATION

Don't Disregard Foliar Feeding of Woody Ornamentals Just Because It Isn't "An Old Proven Practice"

**Dr. Tok Furuta, Auburn University
Auburn, Alabama**

We apply fertilizer simply to insure adequate fertility levels, or to put it another way, adequate levels or amounts of the essential elements to insure the type of plant growth we want. There are many ways plants may be fertilized, the essential nutrient elements supplied so they may be taken into the plant and utilized. We can place fertilizers on or in the soil. We can apply it by spray to the leaves and other above ground structures. Many deciduous plants will absorb the elements through the bark when the plant is dormant so called "bark feeding." One method of controlling zinc deficiency on some trees has been to drive zinc coated nails into the trunk. Of the various method available to supply nutrients to plants, by far the most common way has been to apply the fertilizer to the soil. One of the axioms of modern day business is to look with suspicion on any practice that has not changed in ten to 15 years. Maybe there is a better way, there is a way of reducing cost; at least nothing is lost by taking a critical look even though the practice may remain unchanged. Too often we are prone to say that the practice has been proven by age and therefore cannot be improved. This has hurt the progress of your business.

As a means of insuring an adequate nutritional status for good plant growth of the type desired, foliar fertilization, or "foliar feeding" as it is often called has a definite place. Commercial usage by the nursery industry should increase in such areas as the production of container grown plants, the maintenance of stock in holding areas or sales yards, and in the fertilization of ornamental plants in the landscape.

Usually a plant absorbs all the required nutrients through the root system. This required good, growing,

functional roots. Once absorbed, the nutrient elements are distributed throughout the plant and utilized where needed. These same elements: nitrogen, potassium, phosphorus, microelements, etc, are readily absorbed through the leaves and other aerial parts of a plant and are distributed throughout the plant.

Case for Foliar Feeding

Unless there are distinct advantages in a practice, it should not be used. Some of the reasons for using foliar fertilization are as follows:

(1.) Foliar fertilization can reduce the cost of labor required in fertilizing plants. This is not an "under all conditions" statement for there are definite limitations. If this procedure is worked in with a pest control program costs are definitely reduced. For fertilizing plants in containers, costs are reduced. Actual cost figures showed that if it cost \$24 to fertilize 1,000 plants in containers from April 1 to Oct. 1 using a dry material once a month, the cost was \$15.50 for a weekly spraying using a hand sprayer. The use of power driven equipment would cost less.

(2) It is possible to more closely regulate the nitrogen supply and other elements, to actual requirements of the plant. Due to the dynamic condition of the soil, however simple the mixture used, this is not always possible with applications to the soil.

(3) This practice may and is being incorporated into an already existing spray program for insect and/or disease control. This permits the accomplishment of two tasks at the same time. There will be little if any increase in labor requirement, and only the material cost will increase. Most prepared foliar fertilizers are compatible with most fungicides and insecticides. It is not recommended,

however, that the fertilizer be combined with a copper or mercury inorganic fungicide or insecticide until you learn more about their compatibility. There have been cases where precipitates have been formed by such combinations.

(4) Where conditions prevent or make soil applications expensive, foliar spraying may be the only practical way to insure nutrients at a reasonable cost. Container growing may serve as an example. So may street trees where paving limits soil applications.

(5) For many reasons root absorption may be limited or inadequate. Foliar spraying will insure nutrients for plant growth. Root absorption may be limited by the following conditions:

- a. Inadequate or poor soil aeration.
- b. Temporary waterlogging of the soil due to heavy rainfall.
- c. Cool soil.
- d. Roots cut off such as occurs when plants are dug.

(6) Where a soil condition exists where an element becomes "fixed" before absorption can occur, foliar application may be the only way to supply the material. Fixation of iron under alkaline soil conditions is known.

(7) Quick response is usually noted from foliar application as the materials are applied near the site of utilization.

(8) Foliar fertilization is easily mechanized and does not require large outlays in capital. If a good sprayer is available, no additional equipment cost may be involved.

Case Against Foliar Feeding

We would be remiss if we fail to point out some of the disadvantages. Under practice, each situation is slightly different so the emphasis of the various considerations will vary.

(1) Foliar fertilization will not completely substitute for soil applications. Usually it will only be a supplement, or to put it another

way, soil and foliar applications should be used together. Apple growers usually apply 25 to 50 per cent of the seasonal nitrogen requirement to the soil and apply the rest by foliar spraying for precise control of nitrogen content within the plant. With container-grown woody ornamental plants, we found fair to good results when only foliar fertilization was used compare to soil applications. However, if we incorporated some nitrogen before planting, excellent plants that were as good as those produced by various soil applications resulted from foliar fertilization. This included broadleaf and narrowleaf evergreens.

(2) There must be many more foliar than soil applications during the season. There are practical limits to the amount of an element that can be applied at one time and absorbed through the leaf. Roots usually are surrounded with a solution containing the elements and absorption occurs continuously. We cannot create the same conditions for leaves. This limitation has meant that foliar fertilization that elements required in large amounts can also be efficiently and economically supplied through the leaves.

(3) There are dangers of "burning" the foliage. Proper handling of the materials eliminates this consideration. Probably this one fact more than any other has been responsible for the widespread hesitancy or antagonism to "foliar feeding." We have helped to create this feeling by the constant admonition to "keep the fertilizer materials off the leaves and, if some gets on, wash it off at once."

Diluted fertilizers will not "burn" foliage, but strong solutions will. The permissible concentration depends on the fertilizer compound and if safeners are used. Fungicides and insecticides will also "burn" plants if they are used in too strong a solution. We have learned to follow the recommendations explicitly for these

materials, and we must follow directions with "foliar fertilizers."

(4) Materials for foliar fertilization will be expensive. This is because of the necessity of using completely water-soluble materials. We found that the savings in labor cost more than offset the cost of materials. And, some dry fertilizers may cost as much as the foliar fertilizers.

Tentative Recommendations

A. For container growing, I suggest the following:

(1) In the potting mixture, incorporate nitrogen, phosphorus potassium and calcium. The following can be used (per cubic yard of mix):

3 to 5 pounds of urea-formaldehyde nitrogen

2 pounds of superphosphate

1 to 2 pounds of potassium sulfate

5 to 10 pounds of finely ground dolomitic limestone.

(2) During the growing season, spray weekly with a complete foliar

feeding solution, or with urea alone. Use a concentration of two ounces per gallon of water.

(3) Spray for insects and/or diseases at the same time that fertilizer spray is applied.

(4) Lay out beds for efficient use of equipment, and be sure proper equipment is used.

B. For holding areas and sales yard:

We did not conduct research, nor have I seen reports of the use of foliar feeding for holding and/or sales yards. Generally the plants are not in extremely active growth so fertilization is not a serious problem. I feel certain that foliar feeding can be used and suggest that, particularly if the plants have poor color, foliar feeding be used. It would be best to use a complete fertilizer and to follow the manufacturer's recommendations.

•••••

FERTILIZE GROUND-GROWN CAMELLIAS?

Roy T. Thompson
Glendale, California

The purpose of fertilizing camellias is sometimes forgotten and the process becomes a garden routine which is taken as a matter of course; the need for fertilizer is equated with the need for water. But fertilizer is a food and in some camellia situations, extra food is unnecessary and useless.

Each camellia grower must become his own guide and judge the needs of his plants by their performance. So here are a few conclusions drawn from 29 years' experience in growing camellias in the ground under live-oak trees in Southern California.

The ground is a talus slope composed of sandy loam and has been enriched by fallen oak leaves for perhaps a century. It is hard to imagine a better natural location for camellias. It is probably much like the best native

situations in the orient where camellias first established their habits and characteristics.

My hundred-odd ground - planted camellias have never been artificially fed; that is, with commercial fertilizer. They are as healthy and vigorous as any I have ever seen and I have quite an accumulation of (useless) blue ribbons from their blooms.

During this period the thermometer went down to 15 degrees and up to 115, with no serious results to the camellias. The largest of them is now 18-20 feet in height and some 15 feet in width and others, many of which have been cut down and grafted, thrived and grew into small trees. One thing I have observed is that the rate of growth of these camellias has been slower, quite a good deal slower, than many container grown

camellias that I have observed, but it has been steady, healthy, and vigorous. In other words, they have never been forced.

It is difficult to see how these camellias could have been better fed than by the rotting ground-cover of oak leaves which I have carefully maintained throughout. One of my big problems every year is to hold down the supply of blooms by hours of disbudding.

I have, therefore, one very definite conclusion to offer under conditions such as these: the critical problem is not more food but water. Camellias are hardy plants and will stand a good

deal of drought, but for their best health they should have (in this kind of situation) a plentiful supply of water. Water is the thing to watch, not food. The ideal water is rain and when rainfall is ample and well-spaced, these camellias planted in the ground without fertilizer can win the bluest of blue ribbons.

While this report on "fertilizing camellias" has been, essentially, negative, it nevertheless presents a part of the picture and should be told. It is not really negative for these camellias have been "naturally" fertilized, but not by my hand.

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A garden is a delight to the eye
and a solace for the soul.
—Sadi

Bread feeds the body, indeed,
but flowers feed the soul.
—The Koran

The trouble with gardening is that it does not remain
an avocation. It comes an obsession
—Phyllis McGinley

An addiction to gardening is not all bad when
you consider all the other choices in life.

The fair-weather gardener, who will do nothing
except when the wind and weather and everything else
are favorable, is never master of his craft.
—Henry Ellacombe

DIRECTORY OF CALIFORNIA CAMELLIA SOCIETIES

ATWATER GARDEN CLUB & CAMELLIA SOCIETY; President—Sherry Miller; Secretary—Pam Jambor, PO Box 918, Atwater, CA 95301, Meetings 3rd Tuesday, September-June, 6:30 p.m. St. Nicholas Episcopal Church, 1635 Shaffer Road, Atwater.

KERN COUNTY, CAMELLIA SOCIETY OF: President—Helen Maas; Secretary—Robin Cole, 829 Oleander Ave., Bakersfield, CA 93304. For meeting dates and times, call Helen Maas (661)872-2188.

MODESTO, CAMELLIA SOCIETY OF: President—Don Kendall; Secretary—Sue Kendall, 1505 Gary Lane. Modesto, 95355. Meetings: 1st Sunday, October-April, 1:00 p.m., 220-A Standiford Avenue, Modesto.

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ORANGE COUNTY CAMELLIA SOCIETY: President—Steve Mefford; Secretary—Bob Sheriff, 27333 Paseo Laguna, San Juan Capistrano 92675. Meetings: 1st Monday, October-April, 7:00 p.m. Tustin Senior Center, 200 S. "C" Street, Tustin.

PACIFIC CAMELLIA SOCIETY: President—George Harrison. Secretary—Dorothy McQuiston, 6212 Los Angeles 90028. Meetings: 1st Thursday, November-April, 7:00 p.m., Descanso Gardens, 1418 Descanso Drive, La Canada.

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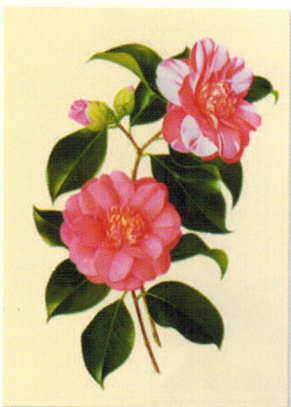
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SAN FRANCISCO PENINSULA CAMELLIA SOCIETY: President—Denise Kupperman.; Secretary—Christina Isenberg, 240 Polhemus, Atherton, CA 94027 Meetings: 4th Monday, October-March, Veterans' Building Annex, 711 Nevada St., Rm. 20, Redwood City (formerly Peninsula Camellia Society)

SANTA CLARA COUNTY, INC., CAMELLIA SOCIETY OF: President—Kathleen Hall. Meetings: 3rd Wednesday, October-April, 7:30 p.m., Lick Mill Park, 4750 Lick Mill Boulevard, Santa Clara.

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