

THE JOURNAL OF THE NATIONAL CHRYSANTHEMUM SOCIETY

Chrysanthemum

SEPTEMBER 2021

GROOMING TIPS FROM THE UK

GROWING & SHOWING BASKETS

MUM BREEDING MADE EASY, PART II

MUMS 2021



**NATIONAL
CHRYSANTHEMUM
SOCIETY**

PRESIDENT

Dan Schadler

4218 Admiral Drive
Chamblee, GA 30341
dan.schadler@mums.org
770-457-3704

FIRST VICE PRESIDENT

Galen Goss

10107 Homar Pond Dr.
Fairfax Station, VA 22039
galen.goss@mums.org
703-978-7981

SECOND

VICE PRESIDENT

Sharon Peterson

4728 Kenneth Avenue
Fair Oaks, CA 95628-6244
sharon.peterson@mums.org
916-966-4802

TREASURER

Leanne Ortega

4724 Kenneth Avenue
Fair Oaks, CA 95628
leanne.ortega@mums.org
916-417-3360

SECRETARY

Anette Lloyd

3325 Oakland Blvd. NW,
Roanoke, VA 24012-3429
anette.lloyd@mums.org
540-520-8801

DIRECTOR OF

MANAGEMENT SERVICES

Galen Goss

10107 Homar Pond Dr.
Fairfax Station, VA 22039
galen.goss@mums.org
703-978-7981

Visit the NCS website:

www.mums.org

WEBMASTER:

web.master@mums.org



MESSAGE
FROM THE PRESIDENT

Nothing Is So Constant As Change

Dan Schadler, NCS President

An old saying maintains that nothing is so constant as change. That certainly appears to be the case for 2021. Our country is coming out of the COVID-19 pandemic and our lives are changing to the "new normal." Weather patterns, especially in the Pacific Northwest, have brought record high temperatures, a change that is not welcomed by the mum growers in that region. But here in Atlanta where I live, we had weather in July that was spring-like for us -- a change that was greatly appreciated.

2021 will see the first NCS National Convention and Show to be hosted by the Central Carolina chapter -- a location that was delayed for a year. The dates are Nov. 3 - 7, 2021. See additional details in this issue and plan to attend.

I have heard from some members who are creating change by purchasing chrysanthemum seeds and growing them to get the next generation of prize-winning blooms. If you have acquired seed from a commercial supplier, I would like to know the supplier of the seed, and your experience. I received a packet labeled "Chrysanthemum Seed" several years ago. The image on the packet did not look like chrysanthemums and the seeds did not appear to be mum seeds. Even with great care, the seeds did not germinate. If growing mums from seed is becoming a new trend, we could list trustworthy suppliers on the NCS website and in other materials. Be sure to see the article *Chrysanthemum Breeding Made Easy - Part II* (page 21 in this issue) if you want to try to produce seeds from your own plants.

Two years ago, NCS initiated our "Mum Partners Across the U.S." program to recognize and promote chrysanthemum shows at public gardens around the country. Because of the pandemic, most gardens were closed last year but many of them have announced the return of their chrysanthemum shows for this year. The list can be found on the NCS website (<https://www.mums.org>) by clicking on "More" and then "Links" and "Resources."

I have heard that some chapters staged very successful plant sales, literally selling out their entire inventory. Let's hope that those plants are growing well and eventually produce flowers that satisfy the grower and will be entered in chapter shows or the national show.

Remember that if you wish to receive *The Chrysanthemum* in electronic form with all photos in full color, you will need to submit your email address when you pay your dues for 2022. This change was initiated a few years ago and all the pieces have finally come together to bring it about.

I extend my best wishes to you for a successful end of the growing season.

Membership and Subscription Information

A subscription to *The Chrysanthemum*, the Journal of the National Chrysanthemum Society, is included as a benefit of membership in the National Chrysanthemum Society. Annual dues are \$20. Single issues of *The Chrysanthemum* may be purchased if available. Institutional subscriptions are also available. Membership requests and change of address should be addressed to Anette Lloyd, Secretary, 3325 Oakland Blvd. NW, Roanoke, VA 24021-3429.

THE Chrysanthemum

EDITOR

Lucy Hackett

233 Circle Drive

Jackson, CA 95642

209-304-5780

lucy.hackett@mums.org

ASSOCIATE EDITORS

Dan Schadler

4218 Admiral Drive

Chamblee, GA 30341

770-457-3704

dan.schadler@mums.org

Bruce W. Zisterer

1939 Allen Avenue

Altadena, CA 91001

818-517-1535

bruce.zisterer@mums.org

ADVERTISING

MANAGER

Jim Dunne

8315 Syracuse Circle

Vienna, VA 22180

703-560-8776

jim.dunne@mums.org



CONTENTS

Volume 77

No. 3

- 4 2021 NCS **Chapter Show Dates**
- 4 **From the Secretary's Desk:** New Member Packets; Annual Meeting Notice; New 25-Year, 30-Year & Life Members; Proposed By-Laws, 2020 NCS Financial Statement
- 5 2021 NCS **Fund Raising Campaign** by Galen Goss
- 5 **A New Chapter Logo** for San Gabriel Valley C.S. by Irene Bernal
- 6 **Mum Bookmarks Available** by Joan Matthews
- 7 MUMS 2021: **Festival of Fabulous Mums** by Penny Amato
- 9 Publications Committee: **Show Transport Photos; 2021 Bloom Finder Available** by Eade Jordan
- 10 "At the Chrysanthemum Show" **Crossword Puzzle** by Joan Matthews
- 11 2021 **New Introductions** and **Classification Changes** by Jeff MacDonald
- 13 **It's All in the Show Schedule -- Size Requirements** by Jeff MacDonald
- 13 **Sprays vs. Terminal Sprays** by Jeff MacDonald
- 15 **On Becoming a "Basket Case"** by Polly Lowe (*Reprinted from June 1986*)
- 18 **We Call It Dressing -- You Call It Grooming** by Ivor Mace
- 20 **Mums and "The Wizard of Oz"** by Rita Rover
- 21 **Chrysanthemum Breeding Made Easy, Part II** by Harry Lawson
- 30 **Mum Growing Guide by Region:** September - December
- 33 **Ways & Means Order Forms**

The Chrysanthemum is published quarterly: March, June, September and December. Submissions of articles and photographs of interest to NCS members are welcomed and encouraged. Copy submission and advertising space reservation deadlines are: Jan. 15 for March, April 15 for June, July 15 for September, and October 15 for December. Contact the editor for details on acceptable copy and photograph formats. Contact the advertising manager for advertising pricing and space reservations.

Copyright © 2021 by the National Chrysanthemum Society. All rights reserved.

ON THE COVER:

One Scoop Best Class 8 (Anemone) at the 2020 Orange County C.S. chapter show, grown by Renee Wherley. Photo by Eileen Halcrow.

2021 NCS Chapter Show Dates

New Jersey State C. S.

October 10
Informal show and picnic.

Long Island C. S.

October 23 - 24
Saturday, 12:00 - 5:00 pm
Sunday, 9:30 am - 4:00 pm
Starkie Bros Garden Center,
Main St, Farmingdale, NY

Orange County C. S.

October 23 - 24
Saturday, 1:00 - 4:00 pm
Sunday, 10:30 am - 4:00 pm
Sherman Library and Gardens
2647 E. Pacific Coast Hwy.
Corona del Mar, CA 92625

Bay Area C. S.

October 30 - 31
Saturday, 1:00 - 4:30 pm
Sunday, 11:00 am - 3:00 pm
IOOF, Cupertino Lodge #70
20589 Homestead Rd,
Cupertino, CA 95014

Kitsap C. S.

Date and time TBD.
Cross Sound District Flower Show
Silverdale Lutheran Church

Portland C. S.

October 29 - 31
Saturday/Sunday 9 am to 5 pm
Clackamas Community Center
15711 SE 91th Ave,
Clackamas, OR 97015

Vancouver C. S.

October 30
Saturday, 11:30 am - 4:30 pm
Barberton Grange
9400 NE 72nd Ave
Vancouver, WA

Old Dominion C. S.

October 30 - 31
Saturday, 2 pm - 5 pm
Sunday, 10 am - 3 pm
Location TBD

San Gabriel Valley C. S.

October 30 - 31
Saturday, 9:00 am - 4:00 pm
Sunday, 9:00 am - 4:00 pm
LA County Arboretum
301 N. Baldwin Ave.
Arcadia, CA 91007
Set up Oct. 28, Judging Oct. 29

Central Carolina C. S.

November 4 - 7, Hosting the
NCS Annual Show & Convention

Sacramento C. S.

November 6 - 7
Saturday 10:00 am - 4:00 pm
Sunday 10:00 am - 3:00 pm
Shepherd Garden and Art Center
3300 McKinley Blvd.
Sacramento, CA 95816

Phoenix C. S.

November 20 - 21
Saturday, 1:00 - 5:00 pm
Sunday, 10:00 am - 2:00 pm
Valley Garden Center
1809 N 15th Ave.
Phoenix, AZ 85007

Be Prepared with New Member Packets

By Anette Lloyd, NCS Secretary

New Member Packets are a great way for new members to get an immediate return on the investment into NCS. The way this has worked is a chapter will request new member packets ahead of a plant sale, first meeting, etc. When a new member signs up at these events, they immediately receive the packet which contains the most recent issue of *The Chrysanthemum* journal, a *Beginner's Handbook*, and a welcome letter. If your chapter didn't try this approach this year, please consider it for the coming year.

There are some things that are very important to keep this a smooth process:

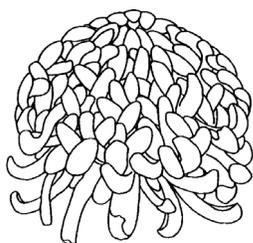
- * It is extremely important to provide me the new member information, even if you already have given them the packet. If I don't have the info, they will not receive the rest of *The Chrysanthemum* journals for the year.
- * When submitting new member information, please indicate if you have already given a member the packet. If you have a new member join and you didn't have a packet, let me know that as well so I can mail them one.

If you have any questions, please do not hesitate to contact me:

Anette Lloyd
3325 Oakland Blvd. NW

Correction

JUNE ISSUE COVER DATE-- The June 2021 issue was incorrectly labeled "March 2021." Members who archive their copies of *The Chrysanthemum* may want to mark this correction on the June issue to avoid confusion in the future.



2021 NCS Fundraising Campaign

We got off to a late start with our 2021 campaign - our kickoff letter missed the March issue of *The Chrysanthemum* but was in the June issue. We have received only three donations as of the end of June. But those three have us more than half-way to our yearly goal of \$6,000. Our total for the year to date is \$3,145, or 52 percent of our \$6,000 goal.

There is still plenty of time this year for you to make your contribution to NCS. The donation form is on the website. You can also make your donation using PayPal - go to the "Donate" button on the website.

Thanks to our early contributors:

Donald Robinson
Courtney Hungerford
Wayne and Pam Wight



A New Chapter Logo for SGVCS

By Irene Bernal

Last year the Descanso Chrysanthemum Society changed their name to the San Gabriel Valley Chrysanthemum Society. This year, to reflect and support that name change, SGVCS decided to hold a logo design contest that offered a one hundred dollar prize to the winning entry. The logo contest was open to all, both members and non-members alike.

FROM THE SECRETARY'S DESK

National Chrysanthemum Society, Inc. Financial Statement 12/31/2020

	2020	2019	Difference
Income			
Membership Dues – Net	7,801	7,659	142
Donations & Other Gifts	20	129	-109
Award Sponsorships	0	2,300	-2,300
Interest	19	13	6
Interest adj from prev years	0	0	0
Amazon Media/EDI Payments	566	200	366
Ways & Means – Net	1,579	-193	1,772
Judges Schools and Certificates	130	160	-30
2020 Fundraising Campaign	<u>5,092</u>	<u>3,900</u>	<u>1,192</u>
Total Income	15,207	14,168	1,039
Expenses			
Advertising	350	0	350
Awards	151	0	151
The Chrysanthemum	10,114	6,269	3,845
Secretary	3,674	4,537	-863
Executive Board & Miscellaneous	56	131	-75
Insurance – Net	559	1,032	-473
National Show	15	1,697	-1,682
Website	1,773	2,483	-710
Bank Fees	0	0	0
PayPal	<u>58</u>	<u>31</u>	27
Total Expenses	16,751	16,180	571
Net Income	-1,544	-2,012	-3,556
Assets 12/31/2020			
Wells Fargo Checking	2,323	5,716	-3,393
Wells Fargo MM Savings	<u>41,235</u>	<u>43,628</u>	-2,393
Total Assets	43,557	49,344	-5,787
Fund Balances 12/31/2020			
General Funds	15,629	21,416	-5,787
Educational Endowment Fund	24,878	24,878	0
Rita Bowersox Memorial Fund	<u>3,050</u>	<u>3,050</u>	0
Total Fund Balances	43,557	49,344	-5,787

The winning logo design was submitted by **Norma Roxas**; the cultivar used in her design is *Yodogimi*. The bloom is actually one she grew during the 2020 season. The other two designs were submitted by Renee

Wherley and Britney Koster (a 16 year-old neighbor of one of our members).

Our congratulations to Norma and our sincere thanks to everyone who took the time to participate in the contest.

National Chrysanthemum Society, Inc., U.S.A. 2021 Annual Meeting Notice

Anette M. Lloyd, Secretary

Pursuant to the bylaws of the National Chrysanthemum Society, Inc., U.S.A., notice is hereby given that the Annual Meeting of the Society will be held in conjunction with the 77th Annual Convention and Show. The meeting will take place at the Millennium Hotel, 2800 Campus Walk Ave, Durham, NC 27705, on Friday, November 5, 2021, at 4:45 p.m.

National Chrysanthemum Society, Inc., U.S.A. Proposed Bylaws Changes

This is formal notification that the following are proposed amendments to the Bylaws of the National Chrysanthemum Society, Inc., USA.

These amendments will allow future Annual Membership Meetings to be held virtually and they attempt to clarify other issues. They will be voted on at the next in-person Annual Membership Meeting on Friday, November 5, 2021, at the Millennium Hotel, Durham, North Carolina.

As required by the bylaws (Article XIX Amendments to the Bylaws) they have been reviewed by Joan H. Corbisiero, Bylaws Chair and were reviewed at the Annual Meeting of the Board of Directors, held by electronic means (on the Zoom platform), on September 26 and October 3, 2020. The Board of Directors recommends that these amendments be approved:

Amend by inserting/adding words that are underlined.

Article IX MEETINGS, Section 1. Annual Meeting.

b. Time and Purpose. The annual meeting shall be held prior to December 1 in each calendar year. The date and place of each meeting, or whether the meeting is to be a virtual meeting, shall be determined by the Board. The annual meeting shall be

held for the purpose of conducting business including but not limited to electing directors, approving dues, amending bylaws, hearing reports and giving directions to the board.

Rationale: To authorize the annual meeting to be held virtually.

Article IV OFFICERS, Section 3. Terms of Office.

The president, the first vice president, and the second vice president shall serve a term of one year or until their successors are elected and be eligible for re-election for one additional term. The secretary and the treasurer may serve an unlimited number of terms. No two offices may be held by the same person. The term of office begins immediately following election.

Rationale: To assure that there will not be a vacancy in the offices of president, first vice president, or vice president until a successor is elected.

Article VIII, BOARD OF DIRECTORS, Section 5. Quorum.

The quorum of the Board shall be a majority of its members then in office.
Rationale: To eliminate vacant positions (not absentees) on the board from being counted toward the quorum.

Article XIII, CHAPTER SOCIETIES Section 2. Name.

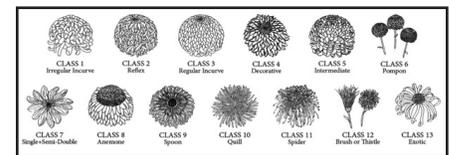
Congratulations, 25-Year NCS Members

2021 25-Year Chapter Members:

John E. Capobianco, Long Island CS

Mr. and Mrs. Bert Cooper, New Jersey State CS

Miriam Willinger, New Jersey State CS



Reminder: NCS Bookmarks Available

By Joan Matthews

A bookmark for NCS has been created by Central Carolina CS member, Barbara Ketchum.

It features drawings of the 13 classes of mums on the back.

There is an open space on the front for your chapter to share your information. You can hand-print the information, or labels are available upon request.

100 bookmarks are available to chapters with the payment of \$8. for postage. Please contact Joan at joan.matthews@mums.org.

Bylaws, cont...

The chapter may select its own name, but the word "chrysanthemum" shall be included in the name of any new chapter; no two chapters may use the same name.

Rationale: To provide guidance for new chapters when selecting the chapter name and for current chapters if they wish to change the name of the chapter.

NCS 77th Annual Convention and Show
 November 4 - 7, 2021 • Durham, N.C.
Mums 2021: “Festival of Fabulous Mums”

BE IN TOUCH

If you need assistance, here is how to get in touch:

Convention Chair

Penny Amato
 pennyamato@yahoo.com
 919-550-2137

Show Chair

Penny Amato
 pennyamato@yahoo.com
 919-550-2137

Horticulture Chair/Entry Inquiries

Michelle Rawlins
 michelle.rawlins@duke.edu
 919-730-3148

Design and Botanical Arts Chair

Erica Winston
 ericawinston@gmail.com
 919-924-6786

Registration

Leanne Ortega
 Leanne.ortega@mums.org
 916-417-3360

**We realize it can
 be confusing!**

There is the PUBLIC EVENT, A Festival of Fabulous Mums, which includes the 2021 NCS Flower Show and seven short seminars. It is open and free to everyone. See www.carolinamums.org for more information about the public event.

Then there is the 2021 NCS CONVENTION for registered NCS attendees only. The convention includes tours, symposia and social events intended just for NCS members. See www.mums.org for information about the convention.

**By Penny Amato,
Show & Convention Chair**

The Central Carolina Chrysanthemum Society (CCCS) is delighted to host the 2021 NCS Annual Show and Convention. As a large and growing chapter, we are excited to showcase our passion for chrysanthemums and the local community.

A Festival of Fabulous Mums

The theme for the 2021 NCS Show is “A Festival of Fabulous Mums” patterned after CCCS’s annual event usually held at Sarah P. Duke Gardens. In addition to a new location, the Festival will be expanded this year to include all of the NCS competitions including Horticulture, Design, Botanical Arts, and Educational exhibits as well as all of the regular activities CCCS provides free to the public during this family-friendly annual event.

In addition to the Main Attraction, (THE BLOOMS), the Festival features historical documents and memorabilia of mum growing throughout the world, children’s activities including a scavenger hunt and special stamping station, information on how to grow mums, and a boutique of mum-related items including floral arrangements and mum plants.

Good Things Waiting for You

So what can you expect when you come to Durham? Beautiful flowers and lots of prizes! We have generous sponsors who work with us each year and our own talented members have been busy preparing some fun items for giveaways. We

will be awarding a door prize to one lucky winner at every event at the Convention. You might win a potting mat or a pair of ratcheting pruners just by attending a board meeting or chapter rep’s meeting. Additionally, the National Chrysanthemum Society was gifted a large collection of mum-related items from the estate of long time NCS member, JoAnne Nazaroff, by her daughter Diana. These items will be available through a variety of channels including the silent auction, the NCS raffle, regular sales and as prizes. Silent auction items of special distinction include a variety of beautiful mum vases, unique bonsai containers, chrysanthemum and other gardening books, and several pieces of framed artwork.

But Wait, There’s More. . .

The public (and of course, our NCS guests) are invited to attend free garden-related seminars throughout the show days, Saturday & Sunday, November 6 - 7. We have seven short seminars planned for the Festival, all with door prizes. *These are in addition to the 5 symposia at the NCS convention. See the abbreviated Schedule of Activities on page 8.*

**Special Presentation by
Brie Arthur Plus Much More**

The free presentations will start off with an exciting talk about “Food-scaping with Grains” by nationally known horticulturalist, Brie Arthur. Check out her website (www.briegrows.com) and her YouTube channel (Brie the Plant Lady). In addition to her presentation, she will host a book

Continued on next page...

signing for her two books.

Other free presentations:

- Garden Destinations Around the World with Beverly Hurley, editor of the local magazine, Triangle Gardener, and the website, Garden Destinations (www.gardendestinations.com).
- Pollinator Gardens with North Carolina Native Plants (the information will be applicable to attract pollinators anywhere) presented by local extension agent, Debbie Roos, who has created a fantastic demonstration garden in nearby Pittsboro.
- Create Your Own Tropical Paradise with Aroids by CCCS member Mike Lowe, the Tropical and Carnivorous Plant Manager at local nursery Garden Treasures.
- Chrysanthemum Bonsai by NCS's own John Capobianco.
- Flower Arranging Demo by former White House floral designer and CCCS member Patty Stimmel.
- Beginners' Guide to Growing Exhibition Mums by CCCS President Joan Matthews.

Please note that the NCS convention has scheduled its own set of symposia. NCS convention attendees are welcome to attend both convention AND flower show seminars.

In addition to all of the free Festival events, the NCS convention will be running concurrently with its own set of symposia, meetings, and social events that were highlighted in the June issue of *The Chrysanthemum*, and are outlined in the abbreviated schedule at right. Social events will include the **Opening Reception** on Thursday evening with a simple ice breaker activity to help you meet some new friends. Our Friday night **Ice Cream Social** will include a quick game of Chrysanthemum Bingo and a group Trivia game. Saturday night's

IMPORTANT Convention Updates!

- **Christmas at Biltmore** opens Friday, November 5, 2021, so if this "Magical Experience" is on your agenda, we suggest you plan to go AFTER the convention. The Biltmore House has kindly offered NCS members **\$10 off their admission November 7-14, 2021**. Use Promo Code "mums21" on the ticket purchase web page at biltmore.com/visit/tickets-pricing/
- Unfortunately, **the Duke Lemur Center will be closed** due to the COVID pandemic.
- **Not registered for the National Convention yet?** It's not too late -- details and the registration form are available at mums.org

2021 NCS Annual Convention & Show Abbreviated Schedule

NCS Convention- Registered NCS Members Only		Festival of Fabulous Mum Seminars- Free and Open to the Public	
Thursday, November 4			
12:00-2:45	Guided tour of Duke Gardens		
3:00-5:30	Board of Directors Meeting		
Friday, November 5			
9:00-9:45	Chapter Rep's Meeting		
9:45-10:45	Panel Discussion - Successful Growing Techniques		
10:30-Noon	Judges Symposium		
11:00-11:45	Symposium - The Importance of Flowers to Society, John Dole		
1:00-4:30	Tour - Duke University Research Greenhouse and Phytotron		
4:45-5:45	NCS Annual Meeting		
Saturday, November 6			
10:00-10:45	Symposium - Garden Gateway Project at Sarah P. Duke Gardens, Kate Senner		
11:00-11:45	Symposium - Carnivorous Plants of North Carolina		
2:00-3:00	Smith College Chrysanthemum Program & Hybridization, Gaby Immerson	1:30-2:15	Foodscaping with Grains, Brie Arthur
3:00-4:30	Symposium - How to Use Social Media to Promote Your Chapter, Brie Arthur	2:30-3:00	Garden Destinations Around the World, Beverly Hurley
4:30-5:30	Board of Director's Meeting	3:30-4:00	Pollinator Gardens with NC Native Plants, Debbie Roos
Sunday, November 7			
		11:00-11:30	Create a Tropical Paradise with Aroids, Mike Lowe
		Noon-12:30	Chrysanthemum Bonsai, John Capobianco
		1:00-2:00	Flower Arranging, Patty Stimmel
		3:00-3:30	Read to Grow Exhibition Mums?, Joan Matthews

Awards Banquet includes a reception beforehand; then we'll congratulate the show winners and learn who won the Sweepstakes competitions. We'll also hold the NCS raffle that night and announce winners of the **Silent Auction** too.

COVID-19 Information

While it is impossible to speculate as to what the situation with the COVID pandemic will be in November, we understand that COVID-19 continues to be a concern for many and we are committed to following all state,

No RSVP Needed: Fun Novice Design Class

A special design class in this year's national show (a traditional design in a mug) is open to anyone who wants to enter (no limit to class size, no reservation needed) so long as they have not won a ribbon in a Standard Flower Show. Join the fun and try your hand at floral design with **Class 7 - My Grandma Grew These: Chrysanthemums Have Been My Favorite Flower Ever Since.**



Above: These chrysanthemum vases donated by the estate of longtime NCS member JoAnne Nazaroff by her daughter, Diana, will be available at the Silent Auction at the 2021 NCS Annual Convention and Show.

Below: Central Carolina C.S. members have been busy creating handmade items like these below for the chrysanthemum-themed boutique at this year's Festival of Fabulous Mums.



NCS Publications Committee Needs Show Transport Photos!

**By Eade Jordan, Chair
NCS Publications Committee**

The NCS Publication Committee needs your help as I have been working to revise and update official NCS pamphlets. I am currently working on the pamphlet entitled, *Transporting Plants and Blooms to Shows* and need good-quality photos (in JPEG format, please) which detail how you transport your blooms and plants to a show.

Do include pictures of boxes, bottles, buckets, or any other means of transporting blooms and plants, including how they fit into your vehicle (car, van, SUV, or truck). I would greatly appreciate a brief description along with your contact information. Please email your pictures to me at: eade.jordan@mums.org. I will endeavor to give you photo credit, so I await your creativity!

county, city, and hotel guidelines in place at the time of the events. North Carolina has been one of the few Southern states that has implemented mask mandates and social distancing restrictions throughout the pandemic.

At the time of this writing (mid-July 2021) 56% of North Carolina adults are fully vaccinated with higher vaccinations numbers in the three counties (Durham, Orange and Wake) surrounding the location of the convention.

CCCS will do whatever is needed to keep all of our members and the public safe during the convention and show including:

- Providing enough space for social distancing for meetings and symposia if needed
- Providing Voluntary "I'm Vaccinated" stickers for NCS members and guests of the Show

- Providing hand sanitizer stations
- Providing free masks

You can find the most up-to-date information on COVID-19 in North Carolina at our Department of Health and Human Services website <https://Covid19.ncdhhs.gov/about-covid-19>. Please refer to these pages for information that will help you make decisions regarding your attendance.

We are looking forward to welcoming you to North Carolina and sharing our enthusiasm for Fabulous Mums. Please don't hesitate to get in touch if you have any questions. You can email Convention Chair, Penny Amato (DurhamMumFestival@mums.org) or CCCS president, Joan Matthews (ccmumsociety@gmail.com) and they will be happy to help you out with extra arrangements or problems you might encounter.

2021 BLOOM FINDER Free Digital Copies or Order from NCS Ways & Means

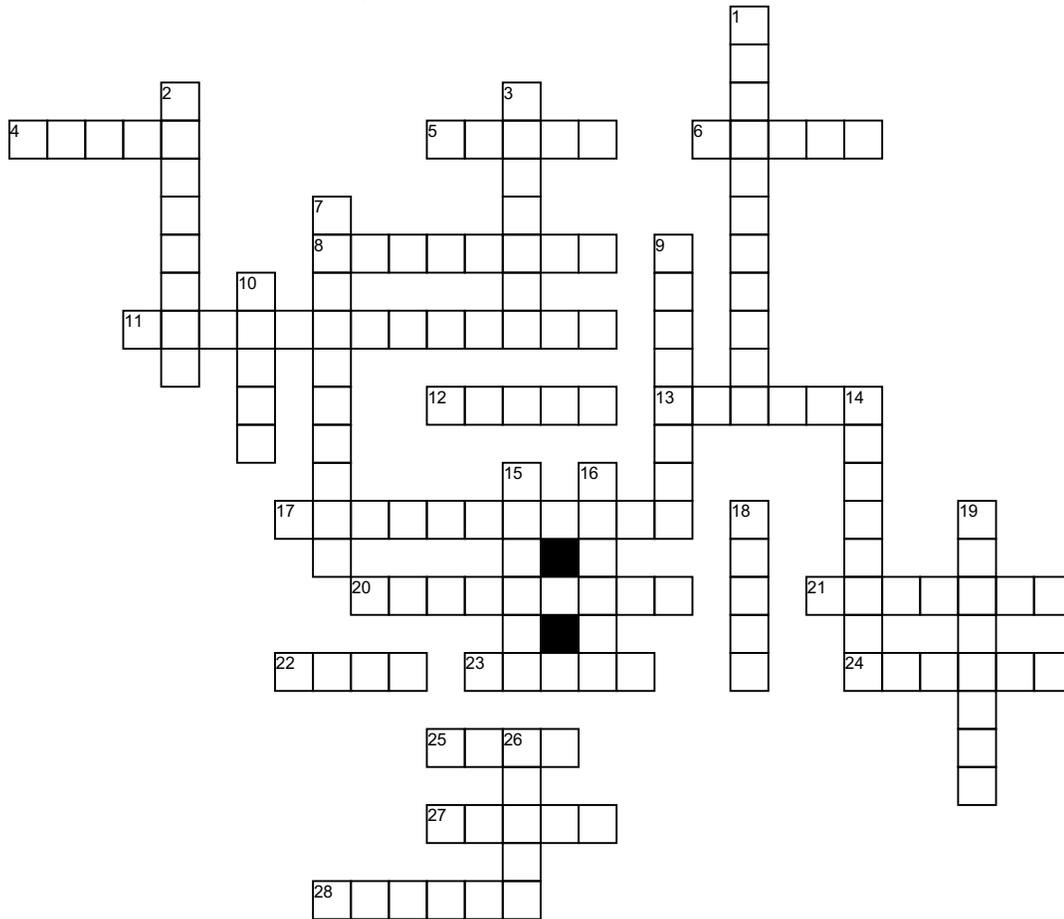
Do not forget to request your FREE copy of the 2021 Bloom Finder.

The Bloom Finder lists cultivars alphabetically, by class and color, and is a handy tool to use when you forget the name of a cultivar OR want to find all the cultivars in a class by their color.

The digital publication will be sent upon request, free of charge. Free copies are also available in the members-only section of the NCS Website. You can print your own copy, OR color printed copies may be purchased for \$10 from Ways and Means.

“At The Chrysanthemum Show”

By Joan Matthews



Across

4. Official who awards ribbons at Show
5. Judge's assistant
6. Insert to balance a show bloom
8. Place entry in proper Class at Show
11. Arrangement of blooms on stem
12. Straplike leaf
13. Removal of excess buds
17. Paper award of recognition
20. Person who enters Show flowers
21. Two hues
22. Short spur left on stem
23. Single unit for competition or Exhibition
24. Exhibitor who has not won a Blue Ribbon
25. Central portion of bloom
27. Subdivision in Show schedule
28. Tiny flower unit of bloom

Down

1. Cumulative point score of ribbons
2. Plant which is the result of cross-pollination
3. Subdivision containing Classes
7. Level of judge between Candidate and Master
9. Master document of Mum Show
10. Collection of florets
14. Major parts of Show Schedule
15. Show award of satiny material
16. Highest class of judges
18. Tidy up a bloom
19. Named variety of a flower
26. New color variation of cultivar

Stumped? See page 17.

Word Bank

SWEEPSTAKES
STUB
JUDGE
SPORT
CULTIVAR
EXHIBITOR
DIVISION

GROUP
CLERK
WEDGE
CLASSIFY
BRACT
ACCREDITED
BICOLOR

DISK
CERTIFICATE
FLORET
INFLORESCENCE
ENTRY
SEEDLING
MASTER

GROOM
DISBUD
BLOOM
SECTION
RIBBON
SCHEDULE
NOVICE

CLASSIFICATION NEW INTRODUCTIONS & CHANGES 2021

New Introductions for 2021

The list of new introductions from King's Mums, Ball Seed, Capobianco Creations, Dummen, North Carolina Flower Farm are listed below. These cultivars **ARE ELIGIBLE** for Section N.

Cultivar	Class	Color	Resp.	Use	Nursery	
Adriana Purple	4C	Pu	E	g	1	2021
Alpine Yellow	4C	Y	E	g	9	2021
Butternut Golden Yellow	4C	DY	E	g	9	2021
Cayenne Red	7B	R	M	p	1	2021
Cheryl Pink Improved	4C	P	E	g	1	2021
Chrystal White	4B	W	M	p	9	2021
Cosmo Yellow Improved	5B	Y	M	p	9	2021
Cracklin Golden Yellow	4C	DY	E	g	9	2021
Demi Pink	7C	P	E	g	1	2021
Fire Halo Orange	4C	LB	E	g	9	2021
Grapeberry Neon Purple	4C	P	E	g	9	2021
Gypsy Rose	4C	Pu	E	g	9	2021
Hailey Gold	4C	DY	E	g	1	2021
Jacksonville White	7B	W	M	p	1	2021
Misty Lilac	4C	DP	E	g	9	2021
Morgana Red Improved	4C	R	E	g	9	2021
Nantucket	7B	Pu/W	M	p	1	2021
Nikki Pearl	4C	W	E	g	1	2021
Oxnard Orange	7B	LB	M	p	1	2021
Pelee Island	7B	R	M	p	1	2021
Prism Purple	4C	Pu	E	g	9	2021
Rihann Red	7C	R	E	g	1	2021
Selena Red	4C	R	E	g	1	2021
Skyfall Lemon Yellow	4C	Y	E	g	9	2021
Splash Energy	9B	R/Y	M	p	9	2021
Splash Intense	8C	P	M	p	9	2021
Sweet Honey Yellow	4C	DY	E	g	9	2021
Tina Gold	4C	DY	E	g	1	2021
Tracy Orange	7C	LB	E	g	1	2021

Relisted Old Cultivars Previously Dropped

These cultivars are **NOT ELIGIBLE** for the New Introduction Class.

Cultivar	Class	Color	Resp.	Use	
Salmon Pauline White	5A	LB	M	d	

Reported New Cultivars Not Commercially Introduced

These cultivars are **NOT ELIGIBLE** for the New Introduction Class.

Cultivar	Class	Color	Resp.	Use	
Christine Arnull	2A	PP	L	D	2021
Amber Peggy Anne	2AA	LB	L	D	2021

The 2021 Classification Changes and New Introductions are listed here. To keep your *Handbook on Chrysanthemum Classification* up to date, you should remove and insert the page(s) into your existing Handbook on Chrysanthemum Classification.

2021 Edition of Handbook on Chrysanthemum Classification is Now Ready

The newest edition of the *Handbook on Chrysanthemum Classification* is now available from the Ways and Means Committee. The Handbook contains the most current information about cultivars that are eligible to be shown and cultivars eligible for Section N, New Introduction Section, of the show. Order forms are available at the NCS website under "Handbooks" and in the back of this issue of *The Chrysanthemum*.

Cut along dotted line and insert into the *NCS Handbook on Chrysanthemum Classification*.

Continued on next page...

Cut along dotted line
and insert into the
*NCS Handbook on
Chrysanthemum
Classification.*

Cultivar Amendments—2021

Classification Committee reviewed suggested changes to previous *handbooks*, the following cultivars have been reclassified or corrected in terms of size, classification, color, and/or cultivar name

Cultivar	From	To
Name Changes		
Goldfinger to Seaton's Goldfinger		
Red Wine to Seaton's Red Wine		
Classification Amendments		
Fairweather	3B	3(5)B
Fairweather/Peach	3B	3(5)B
Fairweather/Primrose	3B	3(5)B
Fairweather/Salmon	3B	3(5)B
Fairweather/White	3B	3(5)B
Fairweather/Yellow	3B	3(5)B
Classification Corrections		
None for 2021		

It's All in the Show Schedule -- Size Requirements

By Jeff MacDonald, NCS Classification Committee Chair

It is always beneficial and helpful for the home gardener and the exhibition chrysanthemum exhibitor to understand the different types and size designations of each of the 13 NCS bloom classifications.

Not every bloom class has the same size requirements. For example, an "A"-sized Pompon is not the same size as an "A"-sized Anemone. An "A"-sized Anemone does not have the same size requirement as an "A"-sized Irregular Incurve. The *Handbook of Chrysanthemum Classification* lists the names of the most widely grown cultivars and what size typically a well-grown cultivar might achieve when disbudded and restricted to just a few blooms.

Home gardeners, exhibitors of chrysanthemums, and NCS Judges should be aware of the minimum size requirement of a bloom and the preferred use of a cultivar. Why is this important? For an exhibitor, it helps to understand how large a bloom should be when deciding to enter a bloom for competition. Undersized blooms may be better suited for a flower arrangement, given to a neighbor, or simply enjoyed as cut flowers, or you could leave them for color in the fall garden landscape.

Knowing the preferred use of a cultivar is also important. What is the cultivar intended for -- sprays, potted plants, disbuds? Is it a garden-hardy type? A home gardener needs to know if blooms will need to be covered or protected from the rain when

in full bloom. Which types will stand up to the weather and are best used in the landscape or grown in a pot? Understanding the use of a mum helps determine where in your garden to plant your mums. Are you wanting garden mums or exhibition mums?

Judges need this information to correctly award points for size (for example, an "A"-sized (6" to 8") versus "B"-sized (4" to 6") Irregular Incurve or Reflex). Cultivars, whether "A" or "B," should receive the same points based on the degree of variance. Is the cultivar grown to what is considered typical for the cultivar, or smaller than the bloom is classified?

If you are serious about growing and showing quality chrysanthemums, it is well worth understanding what a judge is looking for when assessing blooms. Both judges and exhibitors should be familiar with the faults and merits of each bloom class. The following is from the 2019 edition of the *NCS Show and Judges Handbook*:

SIZE

Size is the actual measurement in inches of the breadth diameter. Size impresses the untrained observer, but a judge is fully aware that size is only one of the major qualities of a disbudded bloom.

All disbudded blooms entered in an NCS Standard Show must be 4" and over, except Pompoms and Brush or Thistle. Pompoms should be less than 4", preferably no more than 3", with emphasis on form and substance. If Brush and Thistle types are exhibited as disbuds, the size should be under 4".

Oversize is generally a merit and is so rewarded, particularly in incurve, reflex, and spider classes. When a cultivar is grown beyond its typical size, as a result of good culture, and

Continued on next page...

Sprays vs. Terminal Sprays -- What's the Difference?

By Jeff MacDonald, NCS Classification Committee Chair

Our NCS *Handbook on Chrysanthemum Classification* has an incredible amount of information about different cultivars we often grow. The *Handbook on Chrysanthemum Classification* lists the preferred use of a cultivar as deemed by the hybridizer and how the hybridizer intended for it to be grown. Examples: D (Disbud), S (Spray), P (Pot), etc. These use codes are only a guide. It tells the grower what the cultivar was genetically bred for: spray, pots, disbuds, etc. This does not mean cultivars with P (pot) cannot be used as a D (disbud) specimen, Fukusuke, or other forms. It just means that the hybridizer felt it was best grown as a potted plant.

There seems to be some confusion when it comes to S (Spray) versus T-S (NCS Standard Terminal Sprays). Cultivars designated with an S (Spray) are cultivars best grown for cut flowers

or sprays for profusion of bloom. These cultivars may or may not produce NCS Standard Terminal Sprays. Many of our spray cultivars were bred for the cut-flower industry.

Cultivars designated with T-S (NCS Standard Terminal Spray) are cultivars which seem to be more reliable to produce NCS-quality Standard Terminal Sprays, but due to cultivation variances, bud selection, high or cool nighttime temperatures, and/or starting of the blackout period, some of these cultivars may not produce an NCS Standard Spray but produce a spray(s) more suited as cut flowers. These sprays often have depressed center blooms, pedicels of various lengths, and poor NCS Spray form but make perfectly good flower sprays for floral designs and cut flowers.

The Classification Committee hopes this helps to better understand the difference of S versus T-S when choosing cultivars for NCS Terminal Sprays.

Show Schedule, cont...

yet retains its proper form, it should receive a merit. Undersize may also be a merit in miniature Pompons (but-tons) which should be grown to less than 1 1/2" in diameter.

Size is judged by a standard established as typical for the cultivar. Normal or average size refers to that which has been established by the originator or breeder. These average sizes have been established for the United States by the NCS Classification Committee and are printed in the NCS Handbook on Chrysanthemum Classification. In general, all Incurves, Reflexes, Intermediates, Quills and Spiders designated as "A" are expected to be at least 6". The designation "AA" would indicate that the average size is at least 8". An exhibit shown larger than these measurements would be rewarded with points to the degree they are above average. Singles, Semi-Doubles, Anemones, and Spoons usually are considered to be average size at 4". Class 4 Decorative bloom qualify as average size at 5". Measurements larger are rewarded. Measurements smaller would fall below the size acceptable for disbuds in an NCS Standard Show. Cultivars in the "C" size normally are grown to sprays and not entered as disbuds.

CHRYSANTHEMUM CLASSES

AA — The largest Class 1 and 2 blooms. These cultivars need a long, cool, frost-free growing season or final greenhouse protection. In warm growing areas, these cultivars seldom reach their maximum size and may develop open centers. They are always grown as disbuds.

A — Large blooms. These cultivars should be grown as disbuds.

B — Medium-sized blooms normally grown to disbuds but sometimes grown to spray form in Classes 6, 7, 8, 9 and 12.

C — Small blooms grown to Spray, Tree, Cascade, Hanging Basket and Bonsai forms. Many garden cultivars have C-size blooms.

The size designations below show the AA, A, B, and C sizes in each class. Size designations are not consistent because there is a wide difference in the top size for different classes of mums. For example, a 4" irregular incurve is a Size B; a 4" anemone is a Size A.

- Class 1. Irregular Incurve, AA 8" and over, A 6"-8", B 4"-6"**
- Class 2. Reflex, AA 8" and over, A 6"-8", B 4"-6"**
- Class 3. Regular Incurve, A >6", B 4"-6"**
- Class 4. Decorative, A >5", B 3"-5" C < 3"**
- Class 5. Intermediate Incurve, A >6", B 4"-6"**
- Class 6. Pompon, A 3"-4", B 1"-3" C <1"**
- Class 7. Single/Semi-double, A >4", B 2"-4" C < 2"**
- Class 8. Anemone, >4", B 2"-4", C <2"**
- Class 9. Spoon, A >4", B 2"- 4", C <2"**
- Class 10. Quill, A >6" B 4"-6", C < 4"**
- Class 11. Spider, A > 6" B 4"-6"**
- Class 12. Brush and Thistle, B 2"-4" C <2"**
- Class 13. Unclassified, A >6", B 4"-6", C <4"**

Judges especially need to be aware of the differences in the different bloom classes. When viewing a cultivar that is unfamiliar to them, a knowledgeable judge should look up the cultivar in the *Handbook of Chrysanthemum Classification* and see what the recommended size of a bloom should be. Is the bloom smaller, larger, or typical for the size of the bloom? Points for size are determined by the degree of variance from the size classification. Fairness

to exhibitor requires that the rules of the *Show and Judges Handbook* and show schedule be studied carefully.

Quoting from the NCS *Show and Judges Handbook*, 2019 edition:

"When size is 15 points and an exhibit is to be rewarded for exceptional size, the score for size would be 14 or 15 points. If the size is typical for the cultivar, the score for size would be 11, 12, or 13 points. If the bloom is below average, the point score would be 10 points or less (depending upon the degree of smallness)."

It really does not matter if a bloom is an "A," "B," or "C." Points are equal in value. If merely looking at a bloom and assuming it is undersized, it really is beneficial to look up a bloom and know what the correct size should be. Get out your measuring rule and verify the diameter of a bloom if necessary.

Judges and exhibitors should review and read the show schedule before arriving. The schedule is the law of the show. The schedule lists the show rules. Show schedules will list the size requirements for blooms to be allowed on the show tables.

Disbudded blooms smaller than 4" diameter except in Class 6 — Pompon, and Class 12 — Brush and Thistle, types should not be on the show tables, unless the schedule permits them. If the Classification Committee has performed their duties, few, if any, 4" undersized blooms should be on the show floor. It is most important to read and understand the schedule. No two schedules are written the same, so it is imperative that all rules in the schedule of the show being entered are understood and observed.

What should be done when undersized blooms less than the required

Continued on next page...

ON BECOMING A “BASKET” CASE

The following article is a reprint from the June 1986 issue of *The Chrysanthemum*. Minor changes have been made throughout and the original copy is available from the NCS Archivist.

By Polly Lowe, Delaware Valley Chrysanthemum Society

Why bother with baskets, you ask! If you are a good grower and exhibitor already, this may be the next horticultural challenge you need. Through my own experience and observations, “Best Horticulture Entry”/“Best of Show” can be a reality with a well-executed basket entry.

A basket is eye-catching and “awesome” (as my teenage daughter would say). Judges have a hard time overlooking such an entry, and show visitors are especially drawn to the baskets. This is attested by almost all who ever dreamed of collecting such a basket of beautiful blooms. There is no comparison between a single-bloom entry in a tube or bottle and a large collection of blooms displayed in a basket!

Preparation for entering a basket (9 to 12 blooms of the same cultivar, disbuds or sprays) begins at early spring ordering time. One must consider the number of plants needed

If you are a good grower and exhibitor already, this may be the next horticultural challenge you need!

to produce the desired number of blooms. I prefer having a minimum of 15 blooms to choose from for a basket of 12. Depending on your individual growing preferences, one bloom per plant or multiple blooms per plant, you must decide how many cuttings must be ordered. If you take cuttings from your ordered stock, of course, take that into account. Example: last year, I had four cuttings of *Eclipse* which produced 14 disbudded blooms. (Ideally, I should have grown five plants, with three blooms each, for a total of 15 blooms.)

Just as important as determining the number of cuttings to order is the decision of what cultivar to use. My experience has been to grow a cultivar that I: (1) can depend on to perform year after year; (2) know the bloom substance to be excellent; (3) know the stem to be thick and sturdy; (4) know the foliage to have substance and good color; and (5) know that the blooms travel and hold well.

Each grower will have preferences, but past winning basket cultivars have included, among others, *Shamrock*, *Marguerita*, *Chelsea*, *Donlopes White*, *Yellow Knight*, *Escapade*, and *Eclipse*.

The next step is planning for growing space. Short to medium-height cultivars can be grown in pots. I would recommend one plant growing to three blooms in an 8 1/2” container. If you are strictly a bed grower, as I am, I recommend keeping all plants next to one another so that they are sure to receive equal treatment simultaneously. If you are serious about having a basket for a given show date, I would advise enough plants to shade on two different schedules.

The culture of the plants is no different from that practiced for good terminal blooms. Terminal blooms are advised so that good foliage is present and long-necked blooms are avoided. Good foliage, besides being necessary for horticultural excellence, is needed to hide the mechanics of the basket. No extra foliage or plant material is allowed in the basket. Three blooms per plant may reduce bloom size slightly, but size uniformity is the more important factor to consider. Therefore, try to

Continued on next page...

Show Schedule, cont...

4” diameter are on the show floor? Judges should deduct points for under size as justified. Blue or higher awards should never be given to undersized blooms that rate below 90 points; mark bloom as judged or award the appropriate ribbon based on the degree of undersize. A polite note as to why the bloom was marked undersized to the exhibitor can be noted on the back of the entry card.

NCS Gold, Silver, and Bronze Medal Certificates are provided by the National Chrysanthemum Society for chapters to use in their show. (Certificates are available from the NCS Awards Committee Chair.) Exhibits that merit medal awards and meet the exhibit criteria are to be considered in order as listed in the show schedule. All exhibits must meet NCS standards as defined in the *Show and Judges Handbook* or amended and publicized in *The Chrysanthemum*. If exhibits do not conform to

the schedule, Judges should ask the clerk to have the Classification Committee review the entry and place those exhibits in the proper classes or disqualify them for not conforming to the schedule or the rules of the show.

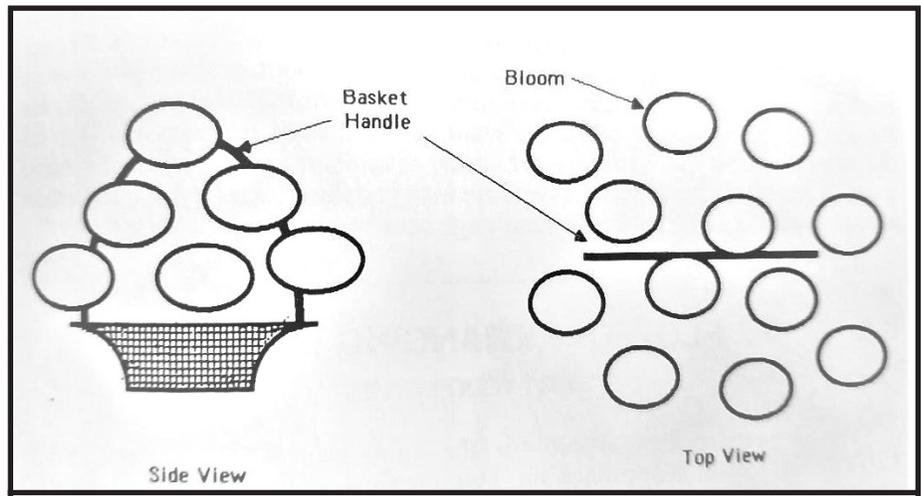
It is the hope of the Judges School Committee and the Classification Committee that exhibitors and judges will have a better understanding about rules and quality reflecting the growing and showing of exhibition-quality blooms.

Basket Case, cont...

grow all the same number of blooms per plant. A plant with one bloom will probably not produce a bloom that is compatible with the blooms from a plant growing to three or more. ALWAYS REMEMBER THAT YOU ARE TRYING TO PRODUCE 12 BLOOMS EXACTLY ALIKE AND AS CLOSE TO PERFECTION AS POSSIBLE!

Before show time, the blooms are cut and conditioned the same as other show entries. Cut all stems as long as possible, keeping in mind the minimum and maximum heights allowed in the show schedule. Later, when final placement of the blooms into the basket is made, each bloom is carefully chosen and cut to proper height for best effectiveness in the display. If you have 15 uniform blooms, prepare all 15. I always strive for a basket of 12, and a few extras ensure that I have the number upon arrival at the show. One can always use the extra bloom(s) in a single or three-of-a-kind entry. But, when the final count is taken, and you have only eight "perfect" blooms and the rest are noticeably different...DO NOT ENTER THE BASKET! (Actually, the same advice goes for any multiple-bloom entry. If you do not have perfectly matched blossoms, enter the next lower multiple bloom class or, if necessary, the best single.)

With a basket entry, one must provide the basket and necessary mechanics to support the blooms and provide water. Throughout the year, I watched for baskets that would make a suitable exhibit. I prefer a basket with a high handle, a sturdy flat base, and sides high enough to conceal an inner water-holding container. Other supplies, including Oasis (the fast-absorbing kind) and 1-inch mesh chicken wire, are needed. It is often necessary to purchase an



Placing blooms in a basket: Place each bloom at a slight outward slant, first the tallest blooms in the center, and work downward.

inner plastic or metal container that will just fit the basket without being visible above the rim. The object is to keep all the mechanics of holding the bloom securely inconspicuous to the observer. Do not rely on the handle of the basket for support, for stems and blooms should not rest against the handle or be tied to it. (See rules in the 2019 *Show and Judges Handbook*, Rule No. 16 (Page 40), Exhibit Selection and Preparation, Pages 50-51.)

The basket (without blooms) is prepared at home prior to departing for the show. The visual weight, color, and texture have been carefully selected to harmonize with the cultivar being exhibited. *Donlopes White*, a large white spider with a medium thick floret, would not seem compatible with a rough textured basket made from grape vines. A more tightly woven basket would be more suitable. And, with large spiders, where proportion is more pleasing with longer stems, a basket of suitable weight and depth is required. Never exhibit a basket that looks top-heavy or seems as though it would fall on its face if touched. A well-prepared basket will eliminate these worries.

The inner water-holding container

is first packed with Oasis. Then, 1-inch chicken wire is firmly secured over the top and partway down the sides. This inner container is then placed into the basket and, if necessary, wedged firmly in place. I will leave it to your imagination to improvise on the materials used. Often a lightweight basket can be quite suitable once the inner container is in place and filled with water.

Upon arrival at the show, I first fill the basket container with water covering the Oasis but allowing for sloshing as the basket is moved, although you may be able to move the basket without spillage or disturbing bloom placement. Just remember that the entry must go through classification, then placement and possibly one or two more additional moves before being judged.

PLEASE NOTE: It is recommended that you study and read the most current Show and Judges Handbook for information and follow the show schedule. Pages and quotes throughout this reprinted article may or may not have changed. The Show Chair and Placement Committee Chairs should consider allowing exhibitors to place their own exhibits in the Basket,

and Container-Grown sections. The exhibitor should be allowed to adjust their Basket entry or Container-Grown entry, especially if the exhibit has been moved more than once. Exhibitors should always observe the show schedule rules and follow the Show Committee decisions.

Having the basket ready, the next step in the entry preparation can be accomplished in as little as 10 minutes or take as long as an hour. **ALLOW AT LEAST HALF AN HOUR FOR BLOOM PLACEMENT IN THE BASKET!** Here is where you make your blooms perform. According to the 7th printing Revised 2019 *Show and Judges Handbook*, Pages 103 through 104, "in baskets, the stems may be cut different lengths and shown at different heights so as to make all specimens visible, either from one side of the basket or to provide room for nine or more disbuds or seven or more sprays. More effectiveness is required in arranging baskets since the specimens

will be at different heights and will be placed in relation to the handle of the basket."

Most of the blooms can be displayed to the best advantage with just a slight outward slant. Always start at the top, placing the highest centered blooms first and working downward. If there is a difference in bloom uniformity, select only those blooms most perfectly matched, as few as nine, and adjust the placement of the blooms accordingly. Do not be afraid to move the blooms, but you will find that the more holes made in the Oasis, the less supportive it becomes. The height restrictions on Basket entries are 18" to 40".

Should you not feel satisfied with the production of your labor, you can turn your one-basket entry into three other entries: a single, a container of three, and a vase of five. (Remember: multiple-bloom entries of three and five blooms should all be the same height. Chances are you will get

three blue ribbons if your blooms were basket-quality to start with.

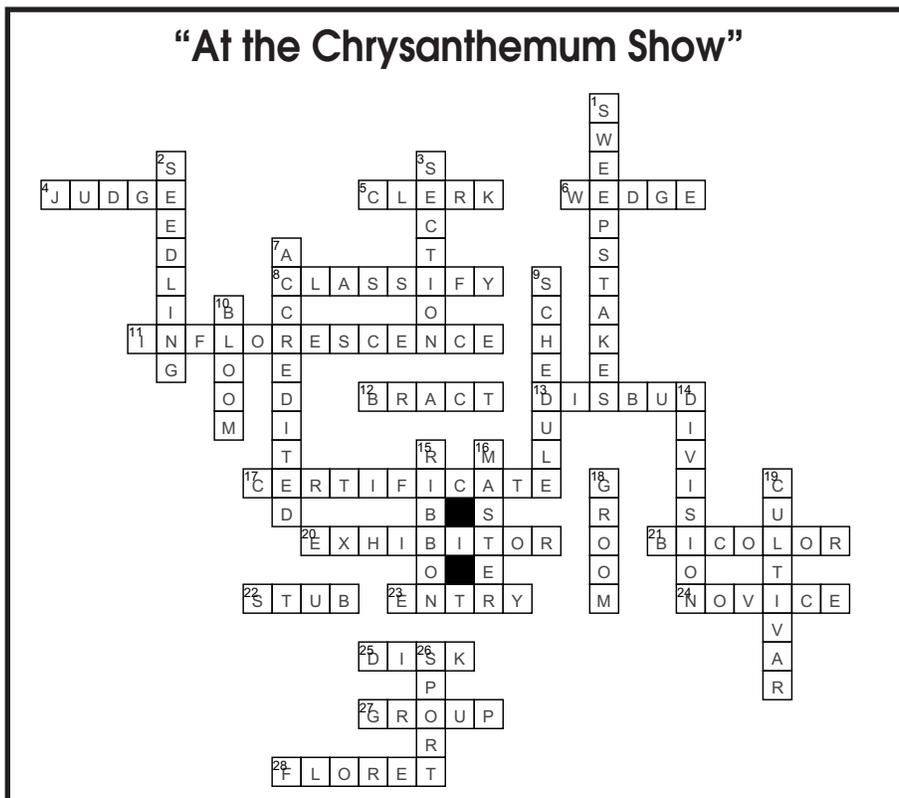
Carefully study the point scale below and keep in mind your selection of cultivar and basket materials to final placement of the blooms.

POINT SCORING, SCALE V, BASKETS--DISBUDS AND SPRAYS

Bloom Quality	40
Color	10
Form and fullness	10
Size	10
Substance and freshness	10
Stem and Foliage	15
Color and size of foliage	5
Size and straightness of stem	5
Substance of stem and foliage	5
Exhibit as a Whole	45
Uniformity (spray form)	10
Pose and proportion (spray grace)	10
Cleanliness and absence of damage	10
Effective placement of blooms, sprays, and harmony of basket (spray grace)	15
TOTAL Points	100

Note that the point scoring of baskets emphasizes horticultural excellence. This is why a basket of matched blooms, spaced effectively, makes such an outstanding display.

Try just one basket of disbuds this year! Or, if you have been successful with disbuds, go for a basket of sprays--a real horticultural challenge if you have never seen one. Their appearances on the show table are few and far between. The best basket of sprays I have ever seen was a white woven basket with a high handle, containing 11 terminal sprays of *Helen Brandt*. It was beautiful! It made me want to put it over my arm and skip all the way home! I am sure the show visitors must have felt the same way. Baskets are a grand addition to every show! What satisfaction and pleasure it is to meet the challenge and be a winner with a basket!



We Call It Dressing -- You Call It Grooming

By Ivor Mace

Photos by Ivor Mace

In the UK, we call it dressing; in the US, you call it grooming.

The way you cultivate your plants can certainly make things much easier when it comes to grooming. If I had to summarise, I would say its 90% good cultivation and 10% grooming that puts the icing on the cake. You can't make a silk purse out of a sow's ear.

One of the things that makes blooms unruly is high temperatures during the flowering period. Most growers in the UK shade their blooms through flowering. By shading I don't mean blacking out, I mean preventing sunshine striking the blooms, by either painting the glass with a shading paint or erecting a shade cloth like garden fleece above the developing blooms.

All our plants are pot-grown in the UK and housed in greenhouses to flower. The UK climate in the autumn is unsuitable for blooms outside or under covers. The possibility of frosts and the certainty of high humidity make a greenhouse an essential. Personally, I have a roll-down shade net, on the outside of my greenhouse with 50% aluminium foil woven into it, and a dehumidifier running at night.

So, it's all about keeping the developing blooms as cool as pos-

sible. Another part of cultivation that will help prevent rough, wiry blooms is to alter your feeding regime to a balanced feed through the growth phase and increasing the nitrogen when the buds arrive. Finishing plants on high potash feeds make the petals hard and unruly, and you also can lose bloom size.

Dressing by bloom classification:

For Sections 1 & 2 (1AA & 2AA & 1A & 2A) I just tidy up around the bloom so that it looks symmetrical.

I use a cotton bud, (I know you call them as something else in the US but I can't think what it is. *Editor's note: cotton swabs.*) I like the wooden ones that the medical profession and watch makers use, rather than the double-ended plastic ones that fall apart. Sometimes a bloom will reflex more one side and incurve more on the sunny side, I try to even things up around the bloom and also turn a few petals to achieve an even circular centre. (In the UK we are allowed to use a wire ring to hold the petals out and prevent the bloom taking on a dovetailed appearance but only for Sections 1 & 2).

I specialise in growing Large Exhibition and I grow about 30 cultivars including *Gigantic* & sports, *Jessie Habgood* & sports, *Phil Houghton* & sports & *Duke of Kent* & sports, and of course my namesake and the one



Top: Large exhibition ring. Center: Cotton buds. Above: Quilled petals pulled from incurves as blooms.

named after US grower, *Rita Rover*.

Section 3 Incurved. There is not very much you can do with these except for:

Pull out any quilled petals at the bottom as the blooms open, so that the true petals can come right back to the stem.

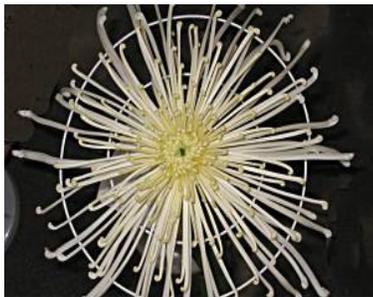
Inspect the bloom underneath and pull out any petals that are spotted or not fresh. You can use the cotton bud to straighten any petals that cross over one another. *Bryony Wade* and sports, *John Hughes* & sports, *Kay Woolman* & sports, *Darran Pugh* & sports and *Fairweather* & sports are popular cultivars here in the UK.

Section 4 in the UK is reflexed (Section 2 in the USA). We don't have the open decoratives as you do in



Staging area at the UK National show.

Below: A double ring in place on a Fantasy bloom. Center: *Pink Splendor* sitting on a wire ring. Right: *Lyn Anderton* with discs in place.



your Section 4. These are included with the incurving Section 5 Intermediates, and to be honest, they have largely died out over here, as they cannot compete with the incurving, more modern, Intermediates. Reflexed blooms get groomed to death in the UK. Growers spend a lot of time straightening overlapping petals and turning any that have not reflexed properly. Cultivars like *Patricia Millar* and its sports (classified 4b or Medium Reflex) are very popular, so is *Doreen Statham* and its *Honeysport*. *Primrose Olwyn* is more popular than its white parent because it's not as prone to spotting. *Woolman's Venture* is big although classified medium. We see the large reflexed *Riley's Dynasty* from northern growers; it's classified 14a which is October-flowering.

It's best to groom each bloom singularly, starting at the bottom and working upwards, leaving a nice neat circular centre. Once all the blooms are done, then they can be vased up properly.

Section 5 (in the UK) Intermediate. It's important to pull out any quilled petals from the base of the blooms as they start to develop. In the UK these can be shown with some undeveloped petals in the centre or closed over the top like an incurve. Apart from moving any crossing petals with a cotton bud, there is not much more that you can do with them.

Section 6 (in the UK) and Section

8 in the USA, Anemone. There are no large anemones left in cultivation in the UK any longer. Well, to be honest, I have not seen any in the last 50 years. Medium cultivars are plentiful. We cut cardboard disks and put them under the developing blooms, held with a clothes peg, this stops the bottom petals drooping. The popular cultivars here are *Mundial* and its very many sports, these came to the UK in 1991 from the USA. In recent years Eric Anderton has bred some lovely medium Anemones, all with the *Anderton* prefix. His earliest seedlings, *Lyn Anderton* and *Jill Anderton* were amongst his best. New this year is *Anderton Croft* named for legendary grower Bill Croft.

Section 7 (in the UK) Singles. Like the anemones, UK growers put cardboard discs under the blooms padded with cotton wool to keep the petals up, and we don't pull them off until just before judging. Like the reflexes, the singles are groomed to death with every petal lying flat. Another cardboard disc is placed on top of the bloom after grooming to stop the petals lifting. *Woolmans Glory* and its three sports are the most popular large, along with *Peggy Stevens*. Also *Zoe Russell*, *Don't Start* and *Amelia Rose* all pinks and all from the late Richard Coles. Popular mediums are *Sheila Coles*, *Mason's Bronze* (100 years old) *Kath Stevenson* and its



Above: Blooms before and after tidying up.

many sports, *Lydia Manyan* and its yellow sport.

Section 10 (in the UK), 9, 10, & 11 in the USA. We call these "Fantasies." These are spiders, spoons and quills all in one section in the UK. We are allowed a wire ring under these as they do in Japan. These are usually fixed under the blooms when staging them. All I ever see our growers do is pull out any damaged petals before staging the blooms. In the UK they are always staged singly and either as a 3-bloom entry or a 6-bloom entry. At our national show the championship class calls for 15 blooms. Popular cultivars are:- *Pink Splendour*, *Lava*, *Gosha Penta*, *Senko Kenshin*, *Capella*, *Salhouse Joy*, *Sanko Karya* and *Valery*.

Best of luck with your dressing -- not always a chrysanthemum grower's favourite pastime.

MUMS AND "THE WIZARD OF OZ"

By Rita Rover

Who knew?

Public television recently aired a documentary on the life of L. Frank Baum. He spent many years working as a travelling salesman and started many small businesses to try to support his family. Unfortunately, they all failed. On the bright side, he spent his free time writing stories about the mythical land of Oz. Finally, one of his books, "The Wonderful Wizard of Oz," was published and became a best seller. The publisher could not keep up with the demand.

The documentary went on to show him in his later years, at one point in his garden. I was surprised to notice some blooms that looked like disbud chrysanthemums.

As a devoted mum grower myself, I had to look into this. I expected it to be a dead end, but thanks to the internet, I hit the jackpot!

Here are the results of my searching. If you put this link into your browser and scroll down, you can read more. <https://www.google.com/search?tbop=p&tbm=bks&q=L+Frank+Baum+chrysanthemums&num=20> This site also lists the links and the excerpts below from various publications that mention Baum's connection to chrysanthemums.

The Distinguished Collection of L. Frank Baum and Related Oziana

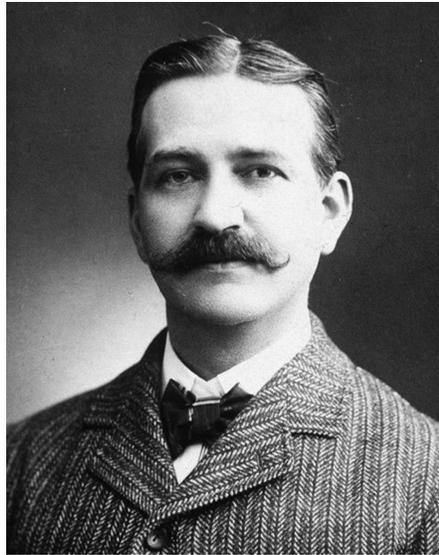
By Justin G. Schiller, Swann Galleries, 1978:

"...awarded to L. Frank Baum by the Broadway Flower Show, 1916, first prize for "Best Single Bloom Chrysanthemum, Amateur Class."

L. Frank Baum: Creator of Oz: A Biography - Page 130

By Katharine M. Rogers, 2007:

"One of the characters in the Oz books is the Woggle-Bug. Baum then went on to write a musical titled



L. Frank Baum, author and chrysanthemum fancier.

The Mr. Highly Magnified Woggle-Bug, Thoroughly Educated. The quote below is a sentence from that book.

They land in a field of chrysanthemums (the chorus girls), who block them from leaving...»

The Publishers Weekly - 1918, Volume 94, Page 597:

"Mr. Baum has, in recent years, made his home in Hollywood, California, where he occupies a charming bungalow, built after his own plans, which is set in a marvelous flower garden. It is Mr. Baum's hobby to raise chrysanthemums and his blooms have taken scores of cups, ribbons and other prizes at the flower shows so popular in southern California."

L. Frank Baum, Delphi Classics - 2017

Delphi Complete Works of L. Frank Baum (Illustrated), L. Frank Baum, 2013:

"Having spent many winters in Southern California, about 1909, Mr. Baum decided to live here permanently and built a residence at

1749 Cherokee Avenue, Hollywood, where he made his home. 'Ozcot' as it is known, is one of the attractive and unique dwellings in Hollywood, surrounded by a beautiful garden in which Mr. Baum delighted to work. He became known as the amateur king of chrysanthemums of Southern California, his dahlias and chrysanthemums in which he specialized, having taken over twenty silver cups at numerous flower shows."

FANTASTICAL ADVENTURES - L.

Frank Baum Edition, L. Frank Baum, 2017:

"...watched the wonderful Magic Flower...Just now a lovely group of pink peonies budded and bloomed, but soon they faded away, and a mass of deep blue lilies took their place. Then some yellow chrysanthemums blossomed on the plant, and when they had opened all their petals and reached perfection, they gave way to a lot of white floral balls spotted with crimson...'I wish the thing would grow fruit for a while instead of flowers.' Scarcely had she spoken when the white balls faded away and a lot of beautiful ripe peaches took their place."

Hollywood Utopia - Page 38

By Justine Brown, 2002:

"One friendly neighbor was L. Frank Baum. There were crimson peonies and bright chrysanthemums which won prizes in local competitions, earning Baum the title 'Chrysanthemum King of Hollywood' several years in a row."

It's fascinating to me to read about local chrysanthemum shows and awards considering how long ago this occurred. If Baum were alive today, I'm sure he'd be an active member of NCS and give us some good competition!

CHRYSANTHEMUM BREEDING MADE EASY -- Part II

By Harry Lawson

2002; Abridged and Edited 2021 by Eade Jordan and Jeff MacDonald, Bay Area Chrysanthemum Society

(EDITOR'S NOTE: The following is the second and final installment reproduced from the booklet *Chrysanthemum Breeding Made Easy* by Harry Lawson (2002). The first installment appeared in the June 2021 issue of *The Chrysanthemum*.

Recently, there has been great interest in breeding new chrysanthemum cultivars here in the U.S. Harry Lawson, a major UK chrysanthemum breeder, passed away in 2014.

UK chrysanthemum class numbers are preserved in this article, and clarifying edits will be shown in *italic font and between brackets { }*. Harry Lawson used inches and feet in measurements rather than metric measurements, but he also used milliliters and liters, which is also preserved here. We have also conformed UK punctuation and spelling/grammar to U.S. equivalents as needed for ease of reading.)

SOWING OF SEED

I used to sow my seed at the end of January, but now I leave it until the second week of February. I use half-seed trays and Levington's F1 compost or B/Q multi-compost (UK). I use *Fongarid* 25 w/p=25%, w/w *Furalaxyl*, which is a fungicide. This is especially good for seed and seedlings. Barry Machin BSc, an expert in the field of chrysanthemums, recommended this to me, and he was always willing to help. This fungicide certainly prevents damping of seedlings, especially stem rot, root rot, and pythium root rot.

I fill the seed trays to seven-eighths full with compost and water in a mixture of *Fongarid*, a teaspoon of the powder placed in a one-pound jam

Harry Lawson
at work.



jar and topped up with water. Place on an airtight lid and shake. Add 50 milliliters of the mixture to 2 gallons of water with the stock-solution. The solution should be shaken and stirred each time it is used as sediment lies on the bottom of the jar. I place the seed on top of the compost and then a light covering of Vermiculite. There are various mediums for sowing seed; they can be sown directly onto litmus filter paper, and you can use only very fine Vermiculite. Sow on top of the compost, then slightly cover with fine compost or Vermiculite. I find the compost and Vermiculite combination best at 3 parts of compost and 1 part Vermiculite. Then place the seed tray in propagation set at 60 degrees (Fahrenheit), and use empty seed tray to cover the top. This is left until seed shoots appear, then take off. Some start to appear after 10 days, and others may take up to four weeks or more.

My propagator has a wooden framed top covered with aquafleece; I find this prevents too much moisture buildup and shades the seedling from the sun. I use the solution of *Fongarid* in a hand sprayer and gently go over with fine mist when they need moisture.

SEEDLING PLANTS

Allow seedlings to form the first pair of leaves. Then move them into 3" pots. I prefer square 3" to 6" pots. You can utilize plastic mushroom trays, which will accommodate six 3" or 4" pots. I like to give more room in bigger pots in the greenhouse and cold frames. I have a two-prong plastic fork for pricking out of the seedlings, although an old cutlery fork will do the job. I made a wooden dibble for 3" pots for seedlings. Fill the pot and use the dibble to make a hole for the seedling. Place in the hole and gently form in with two fingers.

The compost is *Levington's F1 (UK)* (similar to *Pro-Mix US*). I find this very good for seedlings. You can also use peat-based compost with *Chempak Seed* or *Chempak Potting (UK)*. The greenhouse temperature should be kept between 40 to 45 degrees (they get no higher for my seedlings). When you prick out the seedlings, get rid of any weak-looking seedlings. When I first started to breed seedlings, I did try and save poor ones. Experience has taught me otherwise.

Regarding spraying seedlings, I use *Fongarid* and *Cypermethrin* at half-strength, once they are well

Continued on next page ...

Mum Breeding, cont ...

established, or use equivalent of these. I prefer my own made-up liquid fertilizer which has stood me in good stead over many years. I am a great believer in little but often. I use 2 gallons water to 25 milliliters fertilizer every time I water the final pots. This only applies to final pots. I use containers of 5-liter capacity (*slightly over a gallon*).

My feeds are made up of:

No. 1 feed, 9 ounces urea, and 7 ounces nitrates of potash. To this, I add one gallon of water.

No. 2 —9 ounces of nitrates of potash and 7 ounces urea; if not available, 7 ounces ammonia nitrate will do. To this, I add one gallon of water.

No. 3 — If you want high-potash feed, you can use 16 ounces of nitrates of potash to one gallon of water.

No. 4 — If you only wish to have nitrogen, then 16 ounces of urea to one gallon of water. None of these mixtures are caustic. Providing you keep to the ratio that I use, you can foliar feed.

These make a total of 16 ounces = 1 pound. I put the containers via a plastic funnel into a container and fill with water. You can use warm water to help dissolve. Secure the lid and give the container a good shake; to one gallon of water, add 25 milliliters or 1 ounce of this stock solution. This is a general feed and has no phosphates to worry about. I use colored food dyes in the different feeds.

My thoughts have always been that on the base dressing, whether in your final potting mix or in the land, there should be sufficient phosphate and trace elements available to the plants, although during the growing period, I find two liquid feeds of *Maxicrop (UK)* is a good tonic.

Harry
Lawson's
work table.



USING THE RIGHT FEEDS

No. 1 = Steady nitrogen feed for growing.

No. 2 = Change to this potash feed at bud development stage.

No. 3 = Can be used to harden soft stem, especially after prolonged spells of rain and before color show. This will help petals to firm.

No. 4 = This is high nitrogen. Use with caution, but helpful in long sunny spells.

All these should be applied 25 milliliters to one gallon of water.

FINAL POTTING OR GROWING AREA

For my final potting, I use black 3-gallon pots and on occasion 7" pots, still maintaining soilless composts. I find that break buds flower much sooner in this medium, although the choice of compost for final potting is yours. Allow enough room in pots for one top dressing of compost. See [Figure 1](#).

The only fault with flowering on the break bud is that if you have an accident and lose the bud or sustain insect damage, it means another year wasted and another year to assess the flower. The advantage with the break bud method is that it should show potential of the bloom. Arnold Fitton used the method of sowing the seed in August, topping the tops,

rooting them, and using them like a mother plant the following year. This method is good, but the only drawback is that it takes another season longer to see the results of your labor.

Carry out the normal hygiene of spraying and keeping a careful watch for diseases. The most important thing you must do is keep notes of all your work (*which can be done via the computer rather than through hand-entry*).

FINAL POSITION

The site where the plants will be situated, whether in prepared beds or in pots, must have good position for light and canes to support the plants. They must be well secured and in prepared beds, well cultivated or, if in pots, must have good straining wires and strong posts, allowing free drainage for the pots. Most of mine are in pots. Plants grown in the ground can be planted 12" apart and 15" between rows. This applies to the one-up method on the break bud. Apply the usual dressing of fertilizer, and subsequently liquid feeds. The same applies to pot-grown plants. Maintain a good hygiene program and remove bad or diseased plants and material at regular intervals.

SECURING THE BUDS

By "securing the buds," I mean removing all the side shoots and buds,

keeping the crown or main bud, which is in the center on the top of the plant and then, bag the bud as soon as calyx (skin) breaks and shows color. If in pots, wait until they nearly fill the bud bag. Then I take them into the greenhouse. The size of the bud bags I use are mainly 5" because some of the stems can be very thin. This helps to prevent breaking off. I don't bag big ones grown in the land, and you must remember I grow my plants under covers, not in the open.

PROTECTING SEEDLINGS

Once housed in the greenhouse, the bags are taken off. Reflexes and darker-colored cultivars are grown without bags. The white and yellow intermediates and incurves are put into 12"x13" bags and I put up shading on the outside of the greenhouse. I use *Rokolene* as shading with special hooks to keep in place. I have interior fans, plus an extractor fan to keep the air moving. Water little but often. Do not feed the flower when in bloom.

INSECTS

Before putting the plants in the greenhouse, spray with a good insecticide. When doing this, take safety precautions for yourself and surrounding area and allow your plants to dry. To combat earwigs, use paraffin down the tops of the canes. I have a special dispenser for this purpose. All you need is a plastic container with a swan-neck tube, then gently press it, making sure you don't spill any paraffin onto the plants. Have a soapy sponge ready to wipe them clean. Paraffin kills within seconds. Never seal the tops of the canes. To the earwigs, they are like boarding houses. Another method for destroying the earwigs is a wire rod pushed down each cane before it is taken into the greenhouse.

COVERS AND GREENHOUSE

For the plants that I grow under cover, I use muslin shading, once they are in color. I have fans for circulation, and I treat as one would normal chrysanthemums. For plants that I take into the greenhouse, I use fans to keep the air moving and an extractor fan comes on as required. Keep a look out for fungal diseases: White Rust, Petal Blight, Mildew, and Botrytis. Remove any damp or damaged petals found. *Systhane* can be used to keep white rust at bay. In the greenhouse, water little but often, and wipe dry any spillage. I have a specially made plastic measure of one-pint capacity on a length of wood the right size to suit needs for watering plants in the greenhouse.

SELECTING

Now is the most exciting or disappointing time, when you look at the results. You will have your disappointments, but when you get the good ones—oh, boy! It is well worth all the hard work you have put into your labors. Always try and get a second opinion as to the merits of your seedlings. Don't look through rose-colored glasses. My experience over the years is that the percentage of success of the seedlings grown is roughly 5 percent if you are lucky, so it is hard going, but always remember the 5 percent makes it worthwhile, especially when you see a flower you have raised being shown and winning an exhibit. To have your raising being judged the best vase is icing on the cake, and the overall best vase is dreamland.

COMPOST

Once you have selected the seedling you wish to grow for the following season, you must decide on your compost. If your seedling has been grown in the land, you should

pot them up into two- or three-gallon pots. I use *B&Q Multi-Purpose Peat compost (UK)*. I make up my compost with one 2-gallon bucket of coarse Vermiculite. This compost has proven over the years to be very good for producing new cuttings from first-year seedlings. The compost is sterile and carries no disease. Sometimes the best selected seedling does not produce cuttings. This has happened to me before. Now, if I'm in doubt, I take whilst they are flowering to save the stock. You will have occasion when you have selected some of the best first-year seedlings and they give only one cutting. What you can do is to root the cutting. Once you see it has rooted, cut it in half just below a leaf joint. Taking cuttings by this method means you have doubled in numbers and once the cuttings have rooted, try experimenting.

You can try a few leaf cuttings. You allow the leaf to be a reasonable size before you cut it up, cutting just below the leaf joint, approximately 3/4" so you have this length of stem and root in the normal way. With a bit of common sense, you should have enough cuttings to keep the seedling progressing. The numbers of each selected seedling to grow is purely a personal choice. (See Star Rating, below.)

STAR RATING

I grade seedlings on flower quality: Form, Size, Freshness, and Color. If I think they deserve 2 points (maximum) in each category, I will adjust them to be 4 stars. Quality, if only 2 points are awarded in total, they will be relegated to 2 Star quality; any inferior to this will be discarded.

4 Star = 8 Very Good

When this happens, I would advise a second opinion. Don't look through rose-colored glasses.

Continued on next page ...

3 Star = 6 Good

Record the reasons why you give this rating.

2 Star = 4 to 2 Possible

Having known on second year to be very good or waste of time and effort.

Seedling less than 2 Stars, Disregard.

You will have your disappointments. Make sure you record all details. When I first started, I recorded them in one of my old diaries. I still keep diaries. I suppose I am sentimental!

TRY SOMETHING DIFFERENT

Keep trying to have alternatives to your original line. In other words, try for reserves. In the past, my original line has broken down. Luckily, I had a reserve. Remember, you can reverse the cross you make by reversing the roles of female and male. If you really get something good and have not reversed them, try it. This normally works and you may get some even better seedlings. Sometimes they are all not compatible—the female cannot conceive or the male is sterile. Yet the male in reverse can conceive and on rare occasions the female can produce pollen. Good females and good males are the aim for reproduction. Reversing the order of sex should always be tried if possible.

HYBRIDIZERS

Crossing cultivars raised by same hybridizer needs to be thought out more carefully, not that you cannot cross with the same raiser. I like to try different raiser lines, which brings a new dimension to my breeding line. This is my own personal theory. For instance, Woolman's (UK) cultivars have a very good line in Lates with superb releases and incurves second to none. Not forgetting *Dorridge Crystal* in Earlies, one of the all-time greats of reflexes.

Sam Oldham, John Neville,

George Freestone, Ron Jones, Peter Fraser, and I hope to continue to produce good seedlings. Peter got interested in breeding by watching what I was doing, and he has some good seedlings coming along. Ann Brooks is following in the footsteps of her father, "Mr. Chrysanthemum," Wallace Brooks, and is trying her hand at breeding. Without these raisers, the chrysanthemum world would be a poorer place.

DECISION TIME

You must decide which classification the flower belongs to. I have a rough guide, a set of dahlia rings. You can make your own set with a wire coat hanger, making 5", 6", and 7" diameter rings. Decide if they are incurves, intermediates, reflexes, anemones, large or medium exhibitions, singles, or sprays. Other types should be self-evident. (Recommended are 5" for medium incurves and 6" for medium intermediates, reflexes, and singles.) Anything above 6" is classified as large. After careful examination, it is time to decide which of your seedlings is to be registered. They should be as good or better than the ones in commerce, and it is well to remember they do have their seasons.

(Consult the National Chrysanthemum Society, USA at www.mums.org to follow up on the appropriate procedure to register your seedlings.)

HEREDITY AND BREEDING — THE SCIENCE

Breeding depends directly upon sexual reproduction with its variations, through the generations, and this applies to the chrysanthemum. The breeder seizes upon the variations that are favorable to the breeder's plans and endeavors so to combine the genes as to induce or, at least favor, the variation in the direction

the breeder desires. In the plant, the flower is the organ of reproduction, consisting of stigma, style, and ovary, the female organs. The stamen, which produces the pollen, is the male organ.

Fertilization is the union of the nuclei of the egg and sperm (pollen). The egg-cell is produced at the end of the pollen thread that sprouts from the pollen grain after it has fallen on a receptive stigma and grown through the style into the ovary. Since the only available control of future development of the individual resides in the genes contained in the chromosomes of the sperm and egg, united in the nucleus of the fertilized egg or zygote, when union takes place, it becomes a single cell which carries all that the future individual may become.

The basic principles of breeding are: (1) *heredity*, whereby the character of the parents is passed on to the offspring; (2) *variation*, whereby no two individuals, though similar, are exactly alike; and (3) *selection*. This last may be natural, as in the survival of the fittest, or artificial, as when the breeder selected the best offspring.

Mutation (Sports) introduces new characteristics by sudden changes in the nature of a particular gene or in the relationship of groups of genes that may result in a new character in the individual. There are some cultivars which are very prone to this: *Una*, *John Woolman*, *Tracy Waller*, *Venice*, *John Wingfield*, *Courtier*, *Eve Gray*, *Dorridge Crystal*, *Enbee Wedding*, *Chempak Rose*, *Amethyst*, *Patricia Millar*, *William Florentine*, *Woolman's Glory*, *Mason Bronze*, *Majestic*, *Duke of Kent*, *Jessie Habgood*, *Gigantic* and *West Bromwich* and so on.

The chromosome number for the cultivated chrysanthemum varies rather widely about the number 54. The basic number of the genus is 9,

so that 54 would represent a *hexaploid*. The Mendelian ratio holds only *diploids*, that is when the chromosome number is only twice the basic number, in the chrysanthemums, 18.

It is no secret that chrysanthemum breeding is far from being on a scientific basis. We are not yet able to make crosses between cultivars and predict with any degree of accuracy just what will be secured. This is probably because our chrysanthemum cultivars are *polyploid*. If they were *diploids*, we could determine how certain chrysanthemum characters would inherit and could plan and define crosses with assurance of securing a certain result. In order to explain this, we must again direct attention to the chromosomes. In these rod-like bodies are borne the factors or genes that determine what sort of characteristics the plant will have. In a diploid chrysanthemum, there are 18 chromosomes, or 2 sets of the basic number 9. We find there are 9 different sorts of chromosome and the diploids would have 2 of each of the 9 basic types. Somewhere in one of these 9 basic chromosomes is a gene or determiner for flower color. Since there are two of this particular chromosome present, there will be two color genes. If both these color determiners were identical (suppose, for instance, both were for a white flower), then all seedlings coming from this cross would be white.

From experience, this is not so. I have 90 percent to 95 percent white from a white with white. I have had Blush-Pink, Pink Primrose from the same cross. Although, by and large, white x white gives white, from experience we know that there are many different color factors or genes in chrysanthemums. Very often when white is crossed with a red, the hybrid bears pink. In chrysanthemums, 6 sets

of 9 chromosomes, there could be 6 different color genes, one particular chromosome in each of the 6 sets. The interaction of these color genes gives color shades and tints in a chrysanthemum with the exception of blue.

Thus, as the degree of polyploidy in a chrysanthemum increases from diploidy through tetraploidy to hexaploidy, we can expect more complexity in breeding behavior. In bygone years, it was thought that the chrysanthemum had about 54 chromosomes. After conducting much research into this, I now believe that the number of chromosomes is much wider than first thought.

CROSSING

Crossing the same color with the same color normally brings 90 percent the same color. For example, Yellow x Yellow will bring 90 percent Yellow, and so forth. What you need to do is experiment. You will be amazed with the results.

Example 1 = Red x Bronze, a small percentage of the offspring takes after one side's parentage, and a small percentage of the offspring takes after the other side parentage, and rest will give a mixture of both.

Example 2 = Incurves with Intermediates, will bring 80 percent to 90 percent incurves, some intermediates and—believe it or not—some singles plus some freaks. One notable freak resulted in *Brierton Lad*, a late single.

I have crossed Incurves with Intermediates, using both Earlies and Lates, and have had good results. They will give you some Incurves, mostly Intermediates; 90 percent to 95 percent, are normally Intermediates, and 5 percent to 10 percent of different types. I have crossed Large and Medium Exhibitions, crossing them with Intermediates, Reflexes

and Singles, as well as Incurves with Intermediates for Earlies and Lates, and had good results, especially regarding size. You are encouraged to experiment!

LOOKING AT THE CULTIVARS

Early Flowering: *Chessington, Courtier, Eve Gray, World of Sport, Parasol, Margaret Riley, Tracy Waller, Matlock, Solitaire, Gambit, Una, Kathleen Doward, John Woolman.* The ones you cross should continue the line of mutations (sports). How do we attain dark colors? The obvious way is to use dark colors.

October Flowering: *John Wingfield, Patricia Millar, West Bromwich, Kay Woolman, Shirley McMinn, John Hughes, Cheddar.*

Late Flowering: *Shirley Model, William Florentine, Heather James, Duke of Kent, Jessie Habgood, Gigantic, Amethyst, Majestic, Harry Gee, Kathleen Stephenson.* They all have sports.

How about the Incurves and Intermediates? What I have done over the past few years is experiment with medium deep-colored early reflexes crossed with early Incurves and Intermediates, large and mediums. I have had some success by doing this. It follows my theory that one part of the parentage will take after the male side and the other part after the female side, and yet another the lucky dip! *Emma Jane*, early intermediate, came about using *Gambit*, an early reflex crossed with *Purple Glow*, late intermediate. Then, using that cross with *Chessington*, the result was *Emma Jane*. To continue along this line, I have used *Emma Jane* to cross with deep-colored Reflexes and Intermediates and Incurves. On each cross you make, the seed head of that cross contains different types of seedlings, and not one is the same. When they are mature, you can see

Continued on next page ...

Breeding, cont ...

lect out the best of the seedlings that show promise. (*The following class numbers are UK numbers.*)

When I used *Bill Wade* with a seedling of *Chessington*, I got *Claire Dobson* (White) 25b, a very big intermediate. Only fault: this was taller than *Chessington*. Using *Bill Wade* would make it lesser in height. *Megan Woolman* x *Muriel Vipas* gave me *Louise Etheridge* (White) 25b. *Gillette* 23b (White) x *Polar Gem* (White) gave me *June Buglass* 3b (White).

So you can see what I am trying to achieve by doing this. I have been trying over the past few years to breed early-flowering singles. I have now achieved my goal. I have at least 20 singles worthy of trial period. Some of the third years I hope to have registered. My first success was *Brierton Champagne*. This has been my main breeding line. Having used late-flowering singles and early-flowering reflexes, once again recrossing back to *Brierton Champagne* and then using that cross onto early-flowering sprays and back again. To date, the I have obtained Reds, Purples, Pinks, Bronzes, Cream Whites, and some bi-colors like dahlias. I have often wondered how chrysanthemum growers would react to bi-colors. What I am going to try next will be to have a go with early flowering Anemones. My thoughts on this particular range will be to use late-flowering Anemones with early-flowering Anemone sprays and then build a line from there. It is important to look at what you want to achieve. If, for instance, you have crossed and the following resultant seedling has given you flowers with plenty of petals and some short of petals, you should reverse the cross and see what you can obtain. My main aim, when choosing parents, is form, quality of petal lay, and firmness. A deep color's obvious and is

eye-catching, but don't worry about having Whites and Yellows—the main thing is to achieve the appropriate article. How does one obtain size? That is a good question. The obvious answer would be to use large and medium Exhibitions, which I have done. This certainly gives size as well as freaks. You will be amazed the different types you get by doing this.

For deep colors, use medium Exhibitions. The only problem I had with this was form. I got size, the center was the problem and, of course, using Earlies with Lates, you mainly got October ones. I have tried late reflexes and intermediate and had good results, especially to obtain a new breeding line: *James Bryant* (Red), *Amethyst* (Purple), and sports, *Majestic* (Bronze) and sports, *James Dakers* (Deep Pink). I would like to bet *Gambit* came out of this line.= (Breeding Line); *Avonlea* (Deep Pink), *Connie Mayhew* (Yellow), *Shirley Champion* (Yellow), *Lundy* (White) and sport, *Hugh Mitchell* (Red) *Birmingham* (Bronze).

More Exhibitions: *Elizabeth Shoemsmith* (Purple) and sport, *Harry Gee* (Pink) and sports, *Duke of Kent* (White) and sports, *Mark Woolman* (Yellow). You will notice that all except two have been around for a very long time. *Elizabeth Shoemsmith* 1977, *Lundy* 1971, *Jimmy Mottram* (Deep Salmon) 1978, *Kota Kinabalu* (Other Color) 1991, *Ivor Mace* (Light Bronze) 1992, *Phil Houghton* (Light Bronze) 1993.

Late Reflexes: *Shirley Violet* (Purple), *Leonard Shoemsmith* (Red), *Shirley Garnet* (Red), also (Purple) sport, *Symbol* (Bronze), also Yellow sport, *My Lady* (Pink) and sports. (This is stopping or pinching out the growing tip twice on the top of each stem.) *Joy Hughes* (Pink) and (Purple) sport, *Elizabeth Woolman* (Pink) and its sports (Salmon being the best one), *Plush Red* (Red),

Guardsmen (Red). I managed to get a hold of *Shirley Garnet* and *Violet Elizabeth Woolman*, *Plush Red*, and *Glorietta* (Pink). *Plush Red* was one of the parents of *Brierton Celebration* 7b (Red) and also *Heather Newberry* 7a (Red), which shows what offspring one can get. *Doreen Statham* (Red).

October Reflexes: *Patricia Millar* (Pink), *West Bromwich* (White), *John Wingfield* (White), and all their sports. *Woolman's Venture* (Purple).

FAMILY TREE

This is a very important part of breeding, and I have left this until last. I started with late flowering singles, and the first cross was *Peter Robinson* x *Cleone* — this particular cross gave me the main pollen bearer of Singles, not good enough to be considered as a new Single, but it gave me size and plenty of pollen. I still have that cross today. *Brierton Festival* and *Brierton Sunset* came from the male side of the cross. This was the start of the family tree.

REFLEXES

I have progressed to double Earlies first. The cross I used with Earlies was *Sylvia Riley* x *Tracy Waller*, two pink crossed. This gave me a start in Earlies then onto *Pretty Polly* (Purple) x back onto them. This line has given me some near-misses, so to get size, *Parasol* (Pink) and getting warmer with the line, I continued on and I found a good pollen bearer from this line. I have used *Forrest Flare* x *Hillcrest*, which gave me a good breed line of *Sarah Jane* which I still use to this day. This cross gives me a good pollen bearer. *Salmon Tracy Waller* x *Sarah Jane* has given me a nice salmon reflex. *Fiona Lynn* x with this line gave me *Margaret Patricia*, which attained A/M (E). I then crossed this line with *Margaret Patricia* and got *June Rose* A/M (E). At the

time I thought it was a world-beater with lovely petal lay, size, and form. It goes to show how wrong you can be. Then I had to get some deep colors, so I started with *Early Red Cloak* (Red) x *Formcast* (Purple). I knew by using *Formcast*, I had a good petal lay. What I got out of this cross was a start on deep colors. Now I wanted size, and along came *John Riley x Cossack*. *John Riley* was a 14a and *Cossack* was a Section 2. From this came a lot of fluted petals, so I had to find a good petal lay. I got a hold of some *Shirley Glorious*, crossed this with *Dorridge Beauty*, which had nice petal lay, but lacking centers. The offspring of these crosses were the fore-runners of *Hillcrest* to get *Christopher Lawson*, a borderline large, which in fact was registered as a 24a Red PCE as a large, then as a PCE medium. I used *John Riley x Sefton*, both Reds, and got *Jemma Louise* 24a (Red). This was outstanding size, form, and color. Everybody who saw this said it was a world-beater. For three seasons it showed great promise, then, sadly, it started to damp. So I gave it another season and it did the same. John Peace thought it would be a great addition for the large section, and so did Derek Bircumshaw and Fred Waining. They gave it another try and agreed with me, a near miss. Rodger Braithwaite could not believe me when I said goodbye to it.

What do you do regarding keeping a near-miss for breeding? I have kept this for breeding. Normally, you find reds are good for pollen, so I have used this cross for getting size and color. I have two seedlings from this cross with *Doreen Statham*. They are third year this year and last year they looked good, so I will keep my fingers crossed. The only fault with using *Doreen Statham* is that you have tall plants of the *Cossack* type of height.

INTERMEDIATES

Chessington 25a (White), *Bill Wade* 25a (White), *Doreen Hall* 15a (Pink), *Muriel Vipas* 25b (White), *Tennis* 15b (White), *Carlene Welby* 25b (Purple). This was a large and has sported, red, bronze, and yellow. *Shirley McMinn* 15a (Pink), this one is no good with pollen. Always keep records of your crossing, and note the good pollen bearers, especially the ones from which you had good results. I have used Medium Exhibitions, to try and get size. Although these crosses give you size, the form certainly suffers, especially with centers. I have tried them with Intermediates and had one with size and color. I have kept this one for breeding. If you want size, get your tape measure out for this one. I have the first two offspring, and they look promising. You will also notice that if you use Exhibition types, you will by and large get three-headed stigmas to pollinate. If you are trying for an Incurve, you should use Incurves to get Incurves, although I have tried using medium Intermediates, especially the tight-petaled ones.

EARLY INCURVES

Ermine, 23a (White), *Shadow* (White), *Darren Bailey* (White), *Nancy Mathews* (White), *Martin Riley* (Yellow), *Cheddar* 13b (Yellow), *Yellow Nugget* (Yellow) *Max Riley* 23b (Light Bronze), *Liverpool Festival* (Yellow), *Peter Rowe* (Yellow), *Iris Riley* (Pink) *Allison Kirk* (White), *Egret* (White), *Clapham Delight* 23a (White), *Woolman's Celebration* (White). Some have sported. You will note whites normally sport to primrose or yellow. Yellow normally stays yellow or deeper shades of yellow, although not every time. *Margaret Riley* (Pink), although this lacked petals in the middle.

The following have been registered in 2001: *Joyce Frieda*, 13b Yellow PCE, *Lord Barbard* 3b Purple PCE, and *Darren Pugh* 3b Purple A/M (e). Late incurves I have used, *Polar Gem*, *Yellow Marvel*, *Audrey Shoemith*, *Ron Jones*, *Lillian Shoemith*, *Dexter*, *Yukon Crown*, *Minstrel Boy*, *Heather James*, *Woolman's Perfecta*, *Shirley Model*, *Shirley Imp*, *Meagan Woolman*, *Shirley Sunburst*, *Shirley Empress*, *Pelsall Imperial*, *Stockton*, *Dorridge Sunburst*. Present day ones: *Fairweather* 3b W, *Lake Lander* 3b P, *June Burlass* 3b W, *Dorridge Celebration* 3b LP, *Dorridge Flair* 3b LB. *Archie Benson* 3b LB. *Lord Barnard* 3b LPu, is one of mine. It was released this year (2001). This came from a cross of *Stockton* 3b LPu x *Fairweather* 3b W, one of my pollen bearers.

LATE SINGLES

My initiation to hybridizing started with Singles. What you should aim for is the fine example of *Mason Bronze* 7b and sports. You can see these have five sports. *Woolman's Glory* 7b LB and sports, *Kathleen Stephenson* 7b OC (Other Color) and sports. I have had some success with *Brierton Sunset* 7b LB, *Brierton Lad* 7b OC, *Brierton Festival* 7b OC, *Brierton Celebration* 7b R, *Brierton Champagne* 27 b OC. I have now got a new one that will be a great enhancement to the 7b Section, named after the late dear friend of mine, *Ken Stubbins* 7b DB. Remember to have a breeding line of your own, and when you obtain this line, you know you are the only one to possess this. You must always remember that you need a good male and female.

PRINCIPLES OF BREEDING

One of the principles of breeding is that you must not cross Reflexes with Intermediates or Large and Medium

Continued on next page ...

Breeding, cont ...

Exhibitions with Intermediates or Reflexes. The same applies to Singles. Just use Singles to Singles. I would not have achieved the results I have attained had I not followed the principles of breeding. It is obvious that *Elizabeth Woolman* has been used to get size in Singles, just like Large and Medium Exhibitions have been used. I crossed *Plush Red 4b Deep Red* with *Chesswood Beauty* and the offspring *Brierton Celebration*. I have used *Leonard Shoemith* in the past.

What I am trying to achieve is: (1) form; (2) refinement; (3) petal quality; (4) height; and (5) color. If your seedling has formed and lacks petals, cross with one that has plenty of petals. **Form** will always be my main aim. It gives you a very good starting point and if you bear this in mind, you should not go far wrong. It is no guarantee. If you cross to quality parents, then you will get quality offspring.

Refinement is the neat line of petal lay and makes the quality that you should hope to achieve with your crossing. Petal lay is a goal we all wish to achieve.

Petal Quality: The hardness of petal, which, in turn, should not give damping of petals under normal growing condition and, combined with petal lay, makes quality.

Height played an important part in the past and, although desirable, is not essential with the growth retardants we have today. I have always tried to reduce height by crossing with a cultivar that is of ideal height or dwarf habit and once again, no guarantee, you will have to do it by trial and error following my guidelines.

Color: It is most desirable to try and achieve the colors you require. We all know that Reds, Purples, Bronzes, the deeper colors are "eye-catching," although at times in judging these colored flowers, they

seem to have an advantage over the lesser-colored flower with the same criteria.

REPRODUCTION

What I mean by reproduction is: will they produce cuttings to carry the line on? I have had some really good first-year seedlings that have not given me a single cutting and since this started to happen I have always taken cuttings if available and root them. Even if they bud up, this will give stock for the following year. I know that you take a chance if they are rubbish, but all you have to do is to scrap them. There is nothing more annoying than having a very good seedling that it is a shy thrower of cuttings. It takes time to build up the stock, especially when you have a lot of orders for it. You should repeat the process until you have success, and then keep that line, taking note of good pollen bearer or good seed bearer, or—even better—both.

Once you have succeeded in your first year of crosses, you must carefully label the seedling. I like to use color soft labels, which you loop through the label and secure to the stem. You can get these labels from LBS of Colne (UK). I use Yellow for Earlies, Red for October flowering, Blue for Lates, and I have a star system for judging the rating I give each seedling. When you have your first lot of seedlings, you need a means of cataloging them immediately. I find the best method of doing this is to start with number 1. This the year I commenced to hybridize and number of seedlings and the year. Each year, move up one, for example, the second year will start with 2 and the year, so the first year would be 1/1/02 and then 1/2/02. The following year would be 2/1/03. My records show 1/1/72 and now are up to 22/1/02.

I hope the above thoughts and tips are of assistance to you in the breeding of chrysanthemums. I also hope that you will, by following the advice I have given, gain similar satisfaction!

GLOSSARY

The following are definitions of special meaning of terms in breeding:

Allele—One of a pair of genes situated in homologous chromosomes that govern contrasted expressions that are alternative to each other.

Allelomorph—Genes situated in homologous chromosomes govern one pair of contrasted expressions that are the alternative to each other in inheritance.

Anther—Contains Pollen. This is part of the stamen.

Apomixis—Seed produced that is viable without sexual fertilization.

Back-Cross—Crossing an offspring with the parent or grandparent.

Basic Numbers—The number of chromosomes found in the gametes of a diploid ancestor of a Polyploid.

Bloom Feeding—Liquid fertilizer applied to the flower. (Do not use on first-year seedling.)

Break Bud—The natural bud at the end of the main stem.

Bud Mutation—A mutation originating within a cell, or the meristem of a bud. Such a mutation will be carried through the structure originating from that cell and does not affect the remainder of the plant. It may be passed onto posterity if gametes come in the line of succession, or through vegetative propagation.

Cell—The structural and functional unit of plant and animal organisms, consisting of small, usually microscopic mass of protoplasm with a nucleus.

Chromosomes—Rod-like bodies contained in the nucleus, bearer of heredity or genetic material.

Clone—Collective name for all plants reproduced vegetatively from one seedling.

Cross or Cross-Breed—Hybridize. A hybrid. To cross two different cultivars (varieties), strains, or species. The result of such cross.

Crossing—This means collecting pollen and placing onto stigmas.

Cushion—(1) Type of habit of growth; (2) The disk or hemisphere of anemones.

Cuttings—The new growth from old plant when rooted to form a new plant.

Diploid—An organism with two sets of chromosomes in each body cell.

Disk Florets—Short, tubular corollas, of a single-ovule pistil and ring of five stamens, partially united about the pistil.

Egg—Female gamete.

Emasculation—Stamens removed before they burst and disperse pollen. Cutting back petals to show stigmas.

Environment—The aggregate of all of the external conditions and influences affecting the life and development of an organism.

Feeding—Giving the plant solid or liquid fertilizer.

Filament—The stalk bearing the anther.

Gamete—A cell specialized for fertilization. A reproductive cell of either sex.

Heredity—Transmission of characters from parent to offspring through the germ cells.

Hexaploid—Having six sets of chromosomes in each body cell. (See Polyploid.)

Homologous Chromosomes—Chromosomes of the same length and shape that possess genes for the same characters at corresponding points.

Homologous Structures—Struc-

tures in different organisms derived from the same ancestral structure.

Hybrid—The offspring of the union of male of one race, variety, species and genus, etc., with the female of another. A cross-bred animal or plant.

Melosis—The process by which the nucleus divides twice. The chromosome only once, given daughter nuclei each having half the number of chromosomes of each parent nucleus. The process by which sex cells are formed.

Mitosis—The process by which the chromosomes are separated, without change into two groups, forming two daughter nuclei in the nuclear division of somatic cells.

Mutation—Variation in an inherited character.

Nucleus—The most constant constituent of the cell. Contains the chromosomes.

Ovary—The part that contains the ovules, for the prospective seed.

Ovule—The body contains female germ cells. After fertilization, it forms the seed.

Pistil—The female organ of the flower consisting of the ovary, style, and stigma.

Pollen—Small granules from which the male sex cells develop.

Pollination—Placing pollen from the stamen onto the stigma. (See Crossing.)

Polyploid—An organism with more than two sets of chromosomes in each somatic cell. Hence, triploid, tetraploid, hexaploid, etc. (See Chromosomes.)

Ray Florets—Florets are at the periphery of the disk in single forms. Petals are strap-like and tubular at the base, or tubular throughout and are provided with pistil but lack stamens. In double forms, disk florets are few in number, the ray florets taking their place.

Rokolene—A windbreak netting system designed to reduce wind speed by up to 50 percent as well as offering up to 50 percent shade.

Self-Pollination—Pollination between the pollen and stigmas of the same flower or clone.

Sib or Sibling—Plants of the same parentage, but not necessarily of the same seed lots.

Sib Mating—Full sib (sibling) mating is mating brother and sister.

Sperm—The male gamete, or male sex cell.

Spider—Bloom form in which the tubular petals have hooked tips.

Spoons—Bloom form where the ray petals are tubular but open at the ends to form a spoon-like or spatula-like tip.

Sport—Mutation, usually applied to a conspicuous mutation or one of aesthetic or economic value.

Stamen—The male organ in flowering plants, consisting of anther and filament.

Stigma—The part of the style that receives the pollen.

Stool—Old plant that should produce new cuttings to continue with it.

Stopped—The plant has the tip removed on the main stem.

Style—Usually an attenuated portion of the ovary that connects it with the stigma.

Tetraploid—Having four sets of chromosomes in body cells.

Triploid—Having three sets of chromosomes in body cells. See Polyploid.

Zygote—The cell formed by the union of the sex cells and individual into which it develops.

MUM GROWING GUIDE BY REGION: SEPTEMBER - DECEMBER

Pinching and Disbudding,

General Instructions:

Both the garden hardy and disbud types should be pinched to encourage branching when about 6 inches tall. This is done by removing the top ½ inch of the growing tip. When the side shoots resulting from this pinch have grown about 6 inches, they should also be pinched in the same way. Additional pinching may be done if time permits.

The large flowering types of chrysanthemums should be disbudded to allow only a specific number of blooms per plant. For example, if 4 blooms are wanted, only 2 of the sturdiest side shoots should be allowed to grow from the first pinch and 2 from each of these shoots after the second pinch, giving a total of 4 stems. All side branches should be removed from these 4 stems from then on until blooming time.

Northeast Region

September

Stop shading when blooms begin to show color and discontinue feeding. Continue disbudding. Replace shade cloth with clear plastic sheet to prevent rain damage and pray that no hurricanes reach the East Coast.

October

Cut blooms one to two days before show and place in hot tap water. Fill out entry cards and groom your blooms. Don't forget the leaves and stems. Proudly display at the show and win blue ribbons.

Northern Virginia & Washington, D.C. Area

September 15 - 30

Continue disbudding, as needed, and feeding and spraying on schedule. Do not neglect tying the taller

varieties. A total of three tyings (as growth progresses) is usually sufficient for the season. Many of the garden-hardy types and some early disbuds, particularly the English varieties, will come into full bloom during this period.

October 1 - 15

Make plans now to enjoy the fruits of your labors. Be sure to invite friends and neighbors out during the next few weeks to enjoy this most colorful display. Protection from rain and frost may be needed. A plastic "tent" will do the job.

October 15 - 31

Now that you have grown some of the large incurve and spider types of chrysanthemums, bring them to the shows so others may enjoy them too and you may compare your results with other mum enthusiasts.

November 1 - 15

With some protection, such as that furnished by a plastic shelter, you can extend your season of enjoying chrysanthemums to include some of the later flowering incurve, reflex, spider, and quill types, particularly if hard frosts are late in coming. It is worth the chance.

November 15 - 30

Most garden-hardy type chrysanthemums will winter over safely provided they are in a well-drained location. The tops of all types should be cut about 6 inches above the ground and discarded (do not add them to your compost pile). The disbud types can be carried over safely if heeled-in in a cold frame with top raised about 1 inch. If a cold frame is not available, the clumps can be lifted, placed on top of the ground in a well-drained location, and covered with 2 inches of sand. Spray the clumps with the regular mixture to kill lingering insects and disease spores.

December

If the ground freezes early to a depth of about 2 inches, cover the clumps left outside with pine boughs, straw or other light airy mulch to a depth of 4 to 6 inches. Study the season's results. Cull out unworthy varieties and plan to add those you liked in the gardens of friends and fellow members. The catalogs will be out soon. Study them for new and interesting varieties.

Central Carolina

September

The buds of the large and medium exhibition cultivars should be swelling at a fair rate. Towards the middle of the month other cultivar buds will begin to swell and color. Continue to disbud and spray for pests and diseases. By the end of the month many buds will be starting to show color. Keep laterals well tied to canes to keep them straight and also to support the bloom, which gets very heavy as it develops. Make sure you cut your cane just below the head of the bud. This will stop the bloom from being damaged or destroyed. Keep a watch out for caterpillars.

Take the opportunity to visit other growers again this month. Make a point of checking on the classification of your cultivars. Begin preparing for the show by learning their names and classifications. Start filling out your show entry cards; this will cut down on the time it takes at the end preparing to get your cultivars into the show.

October

Remove any dead or decaying leaves. This helps air to move more freely and also helps with mildew control. Remove basal growths and side shoots. Keep checking for pests, etc. If things have gone well, now is one of

Continued on next page ...

the best times of the year. Blooms will be well on the way to opening and it's time to enjoy the last nine months' work. Continue checking and spraying for pests.

Blooms can be cut 48 to 72 hours before a show. Place stems in cold water with a ½ teaspoon of bleach per gallon of water. This helps to control bacteria. This time period also allows for grooming blooms, removing wolf florets, stubs, tears in leaves, removal of bad florets, and bug specks.

As you select your blooms for a show, mark the plants that produced your best blooms. These are the ones you want to keep for next season's cuttings.

Dates, times and fertilizers are a guide only. Individuals will form their own growing style suitable for them.

Georgia

August 23 – September

Switch the fertilizing program on August 23 to 5-10-15 sprinkled lightly over the mulch and water in. Immediately follow up with three tablespoons of 60% muriate of potash, one tablespoon of 34% ammonium nitrate, five tablespoons of fish emulsion to five gallons of water and apply one pint of this solution to each plant. This program should be continued on a two-week schedule until the chrysanthemum buds show color. This same program may be continued on a reduced basis of half strength until the blooms are mature.

Controlling insects, pests, and fungus infections will virtually eliminate most of the need for grooming at show time, providing the spray program is properly administered. The spray program is very important. A hand pump pressure-type spray is most important to spray fungicides and insecticides without leaving

spray residue on the foliage and bloom. Always spray the underside of leaves to kill or control most insects and pests since this is where insects are most of the time. A fine mist is best to avoid runoff and residue build-up on the plants. A light mist or fog on top is good to finish the application and kill top feeders. Two weeks between applications is recommended unless a hard rain washes off the spray. Spray material should not be saved overnight since the material loses much of its strength after being mixed with water.

Buds should begin to form at the growing tip around September 1 to 15, depending on the bloom date for different cultivars. The terminal bud will have several small buds surrounding the terminal or lead bud. For a single disbudded bloom, all the buds surrounding the terminal bud should be removed by rolling out with your thumb, being careful to retain the center bud. For crown buds, the same disbudding procedure should be followed by removing all buds at leaf axils except the lead bud. You need to disbud when the buds are about the size of a small pea, but be careful not to bruise or damage the lead bud.

October

Continue the spraying regime. About the first of October a frame should be constructed and covered with poultry wire to support a plastic cover. Four mil clear plastic should be placed over the frame and secured to protect the opening blooms from rain or frost. As the weather cools, the sides will need to be put into place. If all sides are covered by plastic, a fan should be placed near the top of the frame to maintain air circulation and keep down the possibility of bloom blight or botrytis. As blooms open halfway, cut fertilizer application in

half. At this time, apply a very fine mist of systemic acting insecticide and fungicide to help control botrytis and insects.

Blooms should be cut at least 24 to 48 hours before entering the show. Place the stem into deep water immediately after cutting. If there is a very long time lapse before placing in water, cut off about one additional inch of stem. An individual container such as a tall narrow-necked bottle is very good to hold single specimens.

Ohio

September

Your timed pinch should have been 100 days prior to our show, which is usually held the first weekend in October. Continue watching for cabbage loopers, slugs and earwigs. Do not overwater. Protect from torrential rain storms, hail, ground hogs, chipmunks, deer, raccoons and other vermin. In other words, keep your mums in jail, especially if you live in the suburbs or the country.

Stake your best lateral side shoots – disbud them early so that you won't have ugly scars in the leaf axils. Fertilize every 1 – 2 weeks. Water deeply when needed. Shade with screening on 90 degree days to keep foliage from cooking or blooms from fading.

October

Start shading approximately 10-11 weeks before the show, or earlier for some blooms. Protect from early frost. Ohio is divided into three zones, so shading time varies. Some early bloomers may not require shading.

November

After the show, many growers have success in wintering over cultivars; others purchase new plants every year.

Continued on next page ...

Mum Growing Guide, cont....

San Francisco Bay Area

September

Watch and use insect control of choice. Spider mites and worms can become worse this time of year. Bait or set out rolled newspapers for earwig control. Unsure you have earwigs? Go out after dark with a flashlight and see what is feeding on your plants. We suggest a small spray bottle of insect control be carried and used on all damaging pests.

Your buds should be selected. The easiest way is to select buds—the largest in the terminal cluster. First and second crown buds will be surrounded by vegetative growth. Remove vegetative growth and save the small bud. Visit experienced growers for examples and tips; get to know them, and they will gladly share their knowledge.

October

Color should be showing by early October for show blooms. Continue tying and staking your plants. Stake close to the bud, but not above it. As the bloom opens, the stake will damage the blooms. B-9 at a rate of one-half teaspoon per quart of water sprayed only on the neck below the buds will help keep the neck from getting overly long. Do not spray the buds.

At show time, select and enter a few blooms, or a potted plant. Look for best form and color. Entering a show for the first time can be daunting—visit more experienced growers for tips and ask about showing at meetings. Remember, the best grower in your chapter previously conquered the same challenges as you!

November - December

After the shows, share leftover blooms. Cut down your plants to about 4" to

6". In our warmer California climate, you may need to water (but not over-water) during winter months. Relax, clean up your growing areas, and keep your area clear of weeds and dead leaves.

Sacramento

August/September

The arrival of the short days of fall (less than 14½ hours of light) with longer nights causes the growth to slacken and the flower buds to develop. In the Sacramento Valley, this usually occurs during August, and the flower buds begin to appear at most leaf axils in late August and September. It is very important to remove the excess buds in order to concentrate the growth in your chosen bud or buds, thus getting larger flowers. If you want a "bush" form in your garden, do not remove all the buds from the leaf axils and you will get smaller flowers.

Continue with your fertilizer program, and also be vigilant about spider mites. Most of all on hot August days, keep the plants well watered. If planted in pots, rotate them a quarter turn every week so that all blooms get equal amount of sun and stems grow straight. During September and October water potted mums every day. Do not let the pots dry out. On days when the temperature exceeds 100 degrees F and the plant is in the full sun, it should be watered twice a day. If it is placed in a plastic dish and water is allowed to collect around its base, it may die.

October

During the month of October, you should continue with your program of fertilizing.

November

Enjoy your chrysanthemums in your yard or in beautiful bouquets in your home. Share them with your friends!

Southwest

(Phoenix, Las Vegas)

September

Fertilize your plants every 10 days in the ground or once a week in pots until buds are initiated and then weekly until color shows. Use a high-phosphorus type fertilizer such as 10-50-5 or 15-30-15. Spray for insects. Removal of extra buds (disbudding) will be necessary on disbudded varieties. Removal of side growth should be done on disbudded cultivars to ensure large blooms. Do not remove buds on cushion-type mums. In late September, potash 0-0-52 should be applied to disbudded varieties to strengthen stems and enhance bloom color. Sprinkle 1 tablespoon around each plant. Apply iron.

October

Fertilize weekly until your bloom is half open -- no further. Use high-phosphate fertilizer 15-30-15. Spray for insects if necessary, mainly aphids. Continue to remove extra buds from disbud varieties. Continue to remove side growth. Initial grooming of spray cultivars can be done.

November

Continue localized spraying for aphids if necessary. Enjoy blooms from early in the month through early December.

December

Early in December add fertilizer. Ammonium sulfate diluted 1 tablespoon per gallon. Spray for insects if necessary. Cut off stems with old blooms after they start to die. Initially cut stems to approximately 1 foot high.

National Chrysanthemum Society USA

Show Supplies Order Form

Award Ribbons (with NCS seal printed in gold)

	Price	Qty	Total
Choose one for imprint on ribbons			
[] NCS [] Chapter Name _____		_____	_____
1st (blue)	\$60.00/100	_____	_____
2nd (red)	\$60.00/100	_____	_____
3rd (yellow)	\$60.00/100	_____	_____
Honorable Mention (white)	\$60.00/100	_____	_____
Best in Group (purple)	\$60.00/100	_____	_____
Best in Section (gold)	\$60.00/100	_____	_____
Shipping (cost of postage subject to change)			\$20.00

Rosettes (No setup fee for 12 or more) Less than 12 12 or more

1 Streamer

#545 Special Award (pink)	\$8.50 each	\$4.20 each	_____	_____
#545 Best of Type (orchid) Specify _____	\$8.50 each	\$4.20 each	_____	_____
#508 Sweepstakes Runner-up (orange/white)	\$8.50 each	\$4.20 each	_____	_____
Setup Charge for Less Than 12 - \$15.00 for each type ordered.			_____	_____

2 Streamers

#555 Queen of Show (orchid)	\$7.75 each	\$4.50 each	_____	_____
#76-2 Sweepstakes (green/white)	\$7.75 each	\$4.50 each	_____	_____
#330 Best Potted Plant (green)	\$8.75 each	\$5.50 each	_____	_____
#555 Best of Show (purple)	\$7.75 each	\$4.50 each	_____	_____
Setup Charge for Less Than 12 - \$15.00 for each type ordered.			_____	_____

3 Streamers

#337 Creativity (purple)	\$9.50 each	\$6.00 each	_____	_____
#107 Tri-Color (blue/red/yellow)	\$9.50 each	\$6.00 each	_____	_____
#WB232 Petite (blue)	\$9.50 each	\$6.00 each	_____	_____
Setup Charge for Less Than 12 - \$15.00 for each type ordered.			_____	_____
Shipping (cost of postage subject to change)				\$25.00

Entry Cards

1000 Entry cards - \$95.00	Shipping - \$20.00	\$115.00/1000	_____	_____
500 Entry cards - \$60.00	Shipping - \$15.00	\$75.00/500	_____	_____
			Total	_____
			Amount Paid	_____
			Balance Due	_____

Date Ordered _____ Date Shipped _____

Name Chapter

Address

City State Zip (9 digits)

Phone E-mail

Make checks payable to NCS and mail with completed order to:
Sharon King, 4708 Tulane Court, Sacramento, CA 95841-4228
916-974-0528 sharon.king@mums.org

Form #4 – July 30, 2021

National Chrysanthemum Society USA

Publications Order Form

Item	Price	Qty	Total
Beginner's Handbook	\$10.00 each	_____	_____
Advanced Grower's Handbook	\$10.00 each	_____	_____
Classification Handbook	\$15.00 each	_____	_____
Bloom Finder (NEW in 2021)	\$10.00 each	_____	_____
Care of Stock Plants - Rooting Cuttings Booklet (NEW in 2021)	\$ 6.00 each	_____	_____
Discount – 10 or more mailed to one address	\$ 5.00 each	_____	_____
Chrysanthemum Culture in the Home Garden Booklet (NEW in 2021)	\$ 6.00 each	_____	_____
Discount – 10 or more mailed to one address	\$ 5.00 each	_____	_____
The Novice Exhibitor Pamphlet	\$ 2.00 each	_____	_____
Growing a Chrysanthemum Tree Pamphlet	\$ 2.00 each	_____	_____
Introductory Growing Projects Pamphlet	\$ 2.00 each	_____	_____
Transporting Blooms Pamphlet	\$ 2.00 each	_____	_____
Show and Judges Handbook (2019 Edition)	\$20.00 each	_____	_____
Discount - 5 or more copies mailed to one address	\$15.00 each	_____	_____
“Mums the Word – Secrets to Growing Chrysanthemums For Home and Show” by Pat Stockett Johnston	\$15.00 each	_____	_____
Discount - 10 or more mailed to one address	\$10.00	_____	_____
	Subtotal	_____	_____
Insurance and Handling if subtotal is \$35 or more	\$5.00	_____	_____
Date Ordered _____ Date Shipped _____		Total Due	_____

Name Chapter

Address

City State Zip (9 digits)

Phone E-Mail

If you live outside of the United States, your payment must be in U.S. Dollars and your bank check must have a U.S. address printed on the check. In order for NCS to avoid large bank collection charges, any foreign check that does not meet these criteria will be returned to the sender.

Make checks payable to NCS and mail with completed order to:

**Sharon King
4708 Tulane Court
Sacramento, CA 95841-4228**

916-974-0528

sharon.king@mums.org

NCS DIRECTORS

Directors 2019-2021

Eileen Halcrow	Santa Ana, CA	eileen.halcrow@mums.org	714-639-7209	Orange County C.S.
Kate McCamish	Bowie, MD	kate.mccamish@mums.org	301-464-2681	General Member
Bruce W. Zisterer	Altadena, CA	bruce.zisterer@mums.org	818.517.1535	General Member

Directors 2020-2022

Tamara Bliley	Oregon City, OR	tamara.bliley@mums.org	503-422-7683	Portland C.S.
Athena Homayouni	Garden Grove, CA	athena.homayouni@mums.org	714-315-9847	General Member
Anita Wharton	Durham, NC	anita.wharton@mums.org	310-433-7096	Central Carolina C.S.

Directors 2021-2023

Jon Peterson	Fair Oaks, CA	jon.peterson@mums.org	916-966-4802	Sacramento C.S.
Rita Rover	Northport, NY	rita.rover@mums.org	631-261-8386	Long Island C.S.
Irene Bernal	Anaheim, CA	irene.bernal@mums.org	714-381-1926	Orange County CS

NCS COMMITTEES

Advisory	Jeff MacDonald	Mountain View, CA	jeff.macdonald@mums.org	650-961-3461
Archivist	Irene Bernal	Anaheim, CA	irene.bernal@mums.org	714-381-1926
Awards	Eileen Halcrow	Santa Ana, CA	eileen.halcrow@mums.org	714-639-7209
Bylaws	Joan Corbisiero	Douglaston, NY	joan.corbisiero@mums.org	718-224-9757
Classification	Jeff MacDonald	Mountain View, CA	jeff.macdonald@mums.org	650-961-3461
Design Developments	Vacant			
Endowments	Leanne Ortega	Fair Oaks, CA	leanne.ortega@mums.org	916-417-3360
Finance & Budget	Wayne Wight	Phoenix, AZ	wayne.wight@mums.org	602-943-7418
Garden Cultivars	Normandie Atkins	Falls Church, VA	normandie.atkins@mums.org	703-560-9032
Int'l Relations	Tamara Bliley	Oregon City, OR	tamara.bliley@mums.org	503-422-7683
Judges Schools & Cred.	Kathy Andersen	Phoenixville, PA	kathy.andersen@mums.org	610-933-1855
	Joan Corbisiero	Douglaston, NY	joan.corbisiero@mums.org	718-224-9757
Membership/Chapters	Anette Lloyd	Roanoke, VA	anette.lloyd@mums.org	540-520-8801
New Chapters	John Capobianco	Farmingdale, NY	john.capobianco@mums.org	516-263-2717
Nominating	Joan Matthews	Raleigh, NC	joan.matthews@mums.org	919-623-0144
Publications	Eade Jordan	Mountain View, CA	eade.jordan@mums.org	650-961-3461
Public Relations/Publicity	John Capobianco	Farmingdale, NY	john.capobianco@mums.org	516-263-2717
Show/Convention Advisory	Galen Goss	Fairfax Station, VA	galen.goss@mums.org	703-978-7981
Site Selection	Vacant			
Social Media	Galen Goss	Fairfax Station, VA	galen.goss@mums.org	703-978-7981
	Anette Lloyd	Roanoke, VA	anette.lloyd@mums.org	540-520-8801
Ways & Means	Sharon King	Sacramento, CA	sharon.king@mums.org	916- 974-0528
Youth Members	Graydon Moss	Silver Spring, MD	graydon.moss@mums.org	301-384-8875

Coming in November...

The Central Carolina Chrysanthemum Society and The Raleigh Garden Club are excited to host the 2021 NCS Flower Show, "A Festival of Fabulous Mums," concurrent with Mums 2021, the NCS National Show and Convention. Note the flyer below indicates Show dates NOT Convention dates.



A Festival of Fabulous Mums

A National Garden Clubs Standard Flower Show

Presented By

The National Chrysanthemum Society
The Central Carolina Chrysanthemum Society
The Raleigh Garden Club

Saturday November 6 ❖ 1 pm – 5 pm
Sunday November 7 ❖ 10 am – 5 pm*

Join us on November 6 & 7, 2021 for this **FREE** event.
*Spectacular Floral Displays, Children's Activities, Free Seminars,
Door Prizes, Raffles, Bloom Sale & More!*

Millennium Hotel ❖ 2800 Campus Walk Drive ❖ Durham, NC

* Show will be open to photographers, Sunday, November 7 from 8 am - 9:30 am

PRSRT STD
US POSTAGE
PAID
PERMIT 96
KENNESAW GA

Return: 3325 Oakland Blvd. NW,
Roanoke, VA 24021-3429



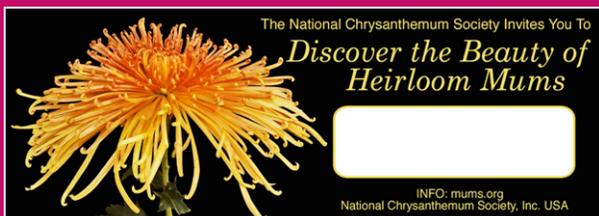
Bid Early, Bid Often!

This chrysanthemum quilt, handmade by a talented CCCS member, will be a Silent Auction item at the 2021 NCS Annual Convention and Show.



Before & After

UK grower and exhibitor Ivor Mace shares tips on getting blooms ready for a show. See page 18.



Mum Bookmarks

These colorful and informative bookmarks are designed for Chapter use at plant sales and chapter shows. See story on page 6 for ordering details.