

THE JOURNAL OF THE NATIONAL CHRYSANTHEMUM SOCIETY

Chrysanthemum



SEPTEMBER 2023

HOW IVOR MACE GROWS MUM MOUNDS

THE BENEFITS OF MYCORRHIZAE

POTS VS. BEDS

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Society

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MESSAGE
FROM THE PRESIDENT

Thank You for the Opportunity

Galen Goss, NCS President

As my two years as your president draw to a close, I have been reflecting on the changes that have occurred.

We transitioned to a new website. It continues to evolve and will get even better as the years go on. It allows for purchases of memberships as well as items from our Ways & Means store via PayPal. We have a professional company monitoring the site and making fixes when they are needed.

We now give members the option of receiving *The Chrysanthemum* either as a hard copy, an electronic copy, or both. It is also posted quarterly on the website. These choices allow NCS to save printing and postage costs. We still have some issues with delivery of the hard copies, but we are continually working to resolve them to make sure that our members receive their issues in a timely fashion.

We are adding judges (both candidate and accredited) to our roster of judges. I am pleased to see for the first time the addition of judges from the Central Carolina chapter. I am also very pleased that the Central Carolina chapter will be conducting its first NCS-judged show this November. The list of chapter shows for 2023 is the largest that it has been in many years. All these shows give us the opportunity to display our beautiful blooms and to spread the word about mums.

Our members voted to expand our options for conducting our annual business meetings to include electronic meetings. The need for this option grew out of the Covid pandemic, but it gives our organization more flexibility.

We have added two new National Awards to the awards that are available to chapters in 2023. They are the result of some extensive work by the Judges Schools and Credentials Committee under the new leadership of Jeff MacDonald and Rita Rover. The awards will be available to chapters for a Novice and Youth Entry and will be both a cash award and a certificate. The cash awards are from the Bowersox Trust fund bequeathed to NCS by James Bowersox in memory of his mother, Rita Bowersox. (See separate article about the awards). Mr. Bowersox's hope was that this type of award would encourage new and young growers.

The change that has yet to occur since the pandemic is an in-person national convention and show. This is the biggest disappointment during my two years. I hope that the new leadership will be able to accomplish an in-person gathering in 2024. I wish the incoming leaders all the best. Your new president will be writing the December President's Message in *The Chrysanthemum*. NCS continues to move forward, and the future looks promising.

It has been an honor to serve as your president. Thank you for the opportunity.

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.



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ADVERTISING MANAGER

Vacant

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 and for advertising pricing and space reservations.

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ON THE COVER:
Casablanca, grown by Ivor Mace. See page 8 for Ivor Mace's tips on growing mound-form mums. Photo by Ivor Mace.

2023 NCS Chapter Show Dates

Bay Area C.S.

November, 3 - 4, 2023
Odd Fellows Lodge #70
20589 Homestead Road
Cupertino, CA 95014
Saturday, 1:30 pm - 5:00 pm
Sunday, 10:00 am - 3:00 pm

Blue Ridge/Skyline C.S.

This will be a combined show of these two societies. Dates and times to be determined. Please check www.mums.org for updates.

New Jersey State C.S.

October 14 - 15, 2023
Laurelwood Arboretum
725 Pines Lake Drive West,
Wayne, NJ 7470

Old Dominion C.S.

October 28 - 29, 2023
James Lee Community Center,
2855 Annandale Road,
Falls Church, VA 22042

Long Island C.S.

October 28 - 29, 2023
Starkie Bros Garden Center
721 Main Street,
Farmingdale, NY 11735

Saturday, Noon - 5:00
Sunday, 9:00 am - 3:45 pm

Orange County C.S.

October 28 - 29, 2023
Sherman Library and Gardens
2647 E. Pacific Hwy,
Corona del Mar, CA 92625
Saturday, 1:00 - 4:00 pm
Sunday, 10:30 am - 4:00 pm

San Gabriel Valley C.S.

November 4 - 5, 2023
LA County Arboretum
301 North Baldwin Ave.,
Arcadia, CA 91007
Saturday, 9:00 a.m. to 4:00 p.m.
Sunday, 9:00 a.m. to 4:00 p.m.

2023 NCS Fundraising Campaign

The 2023 Fundraising Campaign is well underway, and we are grateful for the new contributions that have come in since our last update in the June issue. There is plenty of time for you to contribute and help us continue to make strides to reach our goal. If you would like to contribute, visit our website (www.mums.org) to see the different donation levels. You can print off a form to mail in with your check or you can donate securely online using Paypal. To date, we have received six donations totaling \$695.00. NCS is greatly appreciative to our contributors so far; they are:

Marilyn and Jim Relles, in memory of Alicia J Relles

Stephen Avallone, in memory of Annette Avallone

Sharon Parks, in memory of Dr. John M Parks

Margie and Charles Case, in memory of Honor Brewer Toy

John and Ruthann Clayton, in memory of Tom Aker

Galen and Amy Goss, in memory of James E. Dunne, Sr.

CORRECTION

Jana DeForest's phone number listed on page 5 in the June, 2023, issue of *The Chrysanthemum Journal* under 2023 NCS Chapter Presidents is not correct. Her current number is 941-779-3380 and it is correctly reflected on the inside back cover under NCS Directors.

Central Carolina C.S.

November 4 - 5, 2023
Sarah P. Duke Gardens
Durham, NC

Portland C.S.

November 4 - 5, 2023
Clackamas Community Club
15711 SE 90 th Ave,
Clackamas Oregon 97015
Saturday, 1:00-5:00 pm
Sunday, 10:00-4:00 pm

Vancouver C.S.

November 4 - 5, 2023
Hudson's Bay High School
1601 E McLoughlin Blvd,
Vancouver, WA 98663

Phoenix C.S.

November 18 - 19, 2023
Valley Garden Center
1809 N. 15th Ave,
Phoenix, AZ 85007
Saturday, 1:00 pm to 5:00 pm
Sunday, 10:00 am to 2:00 pm

Sacramento C.S.

November 18 - 19, 2023
Shepherd Garden and Art Center
3300 McKinley Blvd,
Sacramento, CA
Saturday, 1:00 pm - 4:00 pm

National Chrysanthemum Society Life Members

*(Please note: No NCS Member achieved 25-year status this year.
Also, Life Memberships are no longer available.)*

Lee Beck, General Member
Georgene Cole, San Gabriel Valley CS
Susan Dottarar, Portland, CS
Mr. and Mrs. Galen L. Goss, Old Dominion CS
Ronald Grapatin, General Member
Renee Halsey, General Member
Alice Hisatomi, Vancouver CS
Dr. Robert K. Howell, Old Dominion CS
James Jensen, General Member
Roger Jensen, Sacramento CS
Koa Kanemee, General Member
Rich Kibbons, Portland CS
Raymond J. Kruk, General Member
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Susan Chan McCarthy, General Member
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Thomas E. Smart, General Member
Carolyn Tobin, Vancouver CS
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Bruce W. Zisterer, General Member

National Chrysanthemum
Society, Inc., U.S.A.

2023 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 on Sunday, October 8, 2023 at 4 pm Eastern time. The meeting will take place virtually via Zoom. A link will be sent to chapter presidents and the membership prior to the meeting.

2023 Board of Directors' Meeting

The annual Board of Directors' Meeting will take place on Saturday, October 7, 2023 at 1:00 pm Eastern time. This meeting will be held virtually, and a link will be provided closer to the date of the meeting. An additional board meeting will be held immediately following the Annual Meeting that is taking place Sunday, October 8, 2023.

Report of the 2023 NCS Nominating Committee

The NCS Nominating Committee nominates the following slate as Directors for the 2024 - 2026 term:

Sharon King, Sacramento C.S.
Camilla NG, Old Dominion C.S.
Conrad Russell, Portland C.S.

Nominating Committee:
Renee Wherley, Acting Chair
Remu Sharma

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Advice From Across the Pond: Pots Versus Soil Beds, Pesticides & Mounds

By Ivor Mace

Ed. Note: Ivor Mace is an award-winning chrysanthemum grower, exhibitor and breeder in the U.K. British spellings and terms are left as submitted. Products and services mentioned may not be available in the United States.

Pots vs. Soil Beds

In the UK, almost all early flowering chrysanthemums (August/September flowering) are grown in soil beds and almost all late flowering chrysanthemums (October/November flowering) are grown in pots.

Let's look at the reasons for this:

- High humidity is not as big a problem in August/September as it is in October/November;
- It's certainly easier to look after plants that are planted in the ground, than it is in pots. UK growers of early flowering plants often grow 200-400 plants.
- There's no expense on final potting compost, and;

- It's possible to take a week's holiday. This would be difficult to do without arranging for someone to step in for watering duties if the plants were grown in pots.

These are some important things to consider, and there are other important points if you decide to grow your plants in the open ground. First, each spring a soil test is a good idea. Once we have the results of a soil test, we can amend the soil by adding what elements are missing and avoid applying elements that are already present in the soil. Quite often a chrysanthemum bed will have enough phosphates present from previous years. Phosphates are very slow to leach from soils, especially if there are clay particles present in the soil. Potassium is often fairly high and often very little needs to be applied. Nitrogen on the other hand is easily leached by winter rains and is very likely to be deficient.

A little organic matter is a good soil conditioner, it helps with water

retention and helps bind small particles into crumbs. This helps with aeration. Having said this, it's not a great idea to overdo the organic matter because we are looking for well-balanced plants that are not too soft and gouty. When we grow our plants in the ground, feeding is best done with soluble fertilisers, just to avoid clogging up the soil with insoluble phosphates and potassium. Usually something like a 3-1-3 would be good up to budding and 4-1-2 from budding to colour show. Then water only until full bloom.

Most UK growers plant their incurves and intermediates around the perimeter of their cover and use double "grease-proof" bags* over their blooms, 7- x 8-inch bud bags at colour show and then when the neck (pedicel) lengthens and thickens in about 10 days, a bigger double bag replaces the bud bag. This would be a double 14- x 17-inch bag. Double bags because the outer bag will become damp at night and collapse, but with



Left: Plants grown in pots and, at right, outdoors at Ivor Mace's garden in the Rhondda Valley, Wales. Photos by Ivor Mace.



Bloom bags used one inside another (double bagged) so that in the higher humidity of night, the outer bag may soften and collapse but dry inner bag will hold it up and stop it collapsing on the bloom.

a double bag, the inner bag will be dry and not collapse. These bags are fastened with twist ties, we call them twist-its. The reflexed varieties are usually planted in the centre of the cover and a tent made of garden fleece is erected under the cover, and over the plants. Some growers position a small fan heater under the tent, controlled by a humidity thermostat set at 75% relative humidity. Once flowering is over, it's very important to remove the cover straight after flowering is finished so that winter rains can help remove high salts.

We just cannot grow October/November flowering varieties by this method here in the UK because the humidity will almost always be too high at flowering time under an open sided cover. Therefore, we use greenhouses and pot-grown plants are carried into the greenhouse in September as they begin to show colour. We have a greenhouse with shading erected and a heating system installed, also a dehumidifier which we either run at night or run it controlled by a humidistat.

Of course, growing in pots will mean using new potting medium each year, and this will avoid the leftover build-up of salts you can get with open ground growing. We seldom use the grease-proof bags on late flowering chrysanthemums because we have control of the humidity and don't need a bag as a barrier from dampness.

Of course, the USA is such a large country compared to the UK. Twenty-two of your states are each bigger than the whole of the UK. You have such variation to your growing conditions, each of you will need to research your climatic conditions and use your own judgment to how best you can grow your plants. It's certainly easier to grow your plants in the open ground and cover the top with either polythene or P.V.C. at colour show and maybe erect windbreak sides. I imagine that this would be possible in many USA states, but there must be some places where high humidity causing damping off would make this method of growing impractical. In this case you'll need to do as we do here across the pond and resort to pots and climatically controlled greenhouses.

* Grease-proof paper bloom bags, available from the UK at <https://www.chrysanthemumsdirect.co.uk/acatalog/Bloom-Bags.html>

Pesticides: Systemic or Contact

Systemic insecticides work by being absorbed by the plants and are effective for 3-4 weeks, and even longer when they are watered into the growing medium and absorbed by the roots. Some of the systemics that were available in my younger days eventually were proved dangerous to health. (*Aldicarb* was one such insecticide.) For the last 25 years we've had nicotinoids which we were told were much safer and better for the environment. However, they have been proven to affect bees and other

pollinators.

The main and most effective nicotinoid is *Imidacloprid*. This was withdrawn in the UK in 2013 and is now only allowed to commercial growers for use under glass in winter. *Actamaprid* was withdrawn this summer (August 2023). These were effective against aphids -- as a spray they provided 3-4 weeks of pest-free protection. Of course, in 4 weeks a plant will grow quite a bit so we can't expect it to last any longer than this.

In the UK we are left with just *Flupyradifurone*, a relatively new systemic insecticide. It's claimed to be safer than the nicotinoids, but who knows what problems this might have once it's been around a bit longer?

Let me say I do use systemic insecticides because I hate spraying, but unfortunately it is a necessary evil. For one thing, judges don't like livestock in the blooms they are judging. More important to me is that aphids and other pests are a vector for virus diseases, spreading them from plant to plant.

Contact insecticides I feel are good for plants like vegetables, where you spray, kill the pests and within a week the insecticide has broken down and the vegetable is OK to eat. (Or at least that's the claim -- I always leave them much longer before eating them if I have to spray.)

These contact insecticides include the synthetic pyrethroids like *Permethrin* and *Cypermethrin*. A systemic like *Actamaprid*, although its very effective against aphids, is pretty useless against caterpillars. The synthetic pyrethroids however are effective. Personally, I don't

Continued on next page...

like using them as they effect my breathing and make my nose run, even with a mask. I much prefer to use *Spinosad*, its based on a fungus and works well for caterpillars and is longer lasting but unfortunately more expensive.

The effect of insecticides and fungicides on the soil is something only scientists can tell us. I use a bio-fungus (Microlife Bio fungus containing *Bacillus subtilis* and *Trichoderma hazianum*, available from the UK at <https://shopfront.solufeed.co.uk/microlife-323-1-kg-364-p.asp>) impregnated into organic fertiliser as half of my base fertiliser when mixing my potting medium. The manufacturers of the bio-fungus say that fungicides affect them badly, and that the systemic fungicide *Propiconazole* is probably the worse. As it happens it also stunts chrysanthemums so I only use it on chrysanthemum stools as a white rust preventative at the end of the season alternatively with *Azoxystrobin* to avoid resistance to just using one group of fungicides. *Propiconazole* has been withdrawn here now, So when using the bio-fungus I spray a few days before potting on and leave the plants half a month in the new medium with its bio-fungus before spraying again. At least the plants have the benefit of



Golden Chalice. Photo by Ivor Mace.

the bio-fungus protecting the roots for a month before the possibility of being killed off by the fungicide.

I have only used the chemical names in this article because the product names may differ from country to country.

Growing the Charm, or Mound, Form

The Charm Chrysanthemums we grow in the UK are very easy to grow as they need no pinching or blacking-out to get them ready by show time. They only make 4 or 5 leaves before they bud up. In long days the buds abort and shoots grow from the leaf joints below the aborted buds. In other words, they are self-branching, unlike the plants we see on Facebook from India, which need a lot of work pinching, and spraying with growth regulators.

January cuttings have a long season and can easily make a 3- to-4-ft plant. A March cutting might make a 2- to 3-ft plant. An April cutting would grow much smaller.

I keep my greenhouse frost-free throughout December and heat the greenhouse so that it holds a minimum of 8°C (46°F) from Christmas onwards. Cuttings

develop steadily, and by 20th January there are usually 2-inch-long cuttings on the stools. I root them in a 24-cell tray, and in a month, they are ready to go into 9 cm pots (3.5-inch). They spend the next 6 weeks in the greenhouse at 46°F by night and I ventilate at 15°C (60 °F) by day. I only water when they are almost wilting. This takes us up to early April when they are ready for potting on into 14cm pots (5.5-inch). Depending on the weather, frosts that are capable of damaging plants in cold frames are past by mid-April. By then all my chrysanthemum plants are getting bigger and need spacing out. This is when I move them into cold frames and space them out giving each plant a square foot of space. By mid-May the pots are full of roots and need moving into final pots. I use the biggest 10-inch pots that I have for the Charms (Mounds). After final pot-

A wire support ring helps prevent the growing mound from splitting open. Photos by Ivor Mace.



The Benefits of Mycorrhiza

ting, I put the plants back in the cold frames with the tops taken off, and I only replace them when it rains. We live in the wettest urban area in the UK with 105 inches of rain per year. I like to be in control of the watering at least till the plant's roots are running well into the new compost (potting medium). Once they are growing away, I move them outside. They need a sheltered spot where they can't blow over. I either pile empty upturned spare clay pots around them or you can put two canes in the pot and clip them to a straining wire.

Although I often feed my standard chrysanthemums with dry base fertiliser and water it in, I only feed the charms/mounds with soluble feed at half strength at every watering. Although the plants need no support, to get them in top shape for showing I insert 4 canes that only protrude the rim of the pot by about a foot. These canes are inserted following the sloping sides of the pot and I attach a wire ring about 15 inches diameter around the plant. A grower from India told me that 5 canes would be better, I think he's right and next year I'll use 5 canes. As the plants grow, I tuck any growth that comes outside the ring into it, till everything is growing inside the ring. Without a ring you will find when the plant gets big, and you get light rain, it weighs heavy on the plant, and it can split open.

As we come into September, instead of the buds aborting, they set in the shortening days of September. By the end of the month, they begin to show colour, I house them in my well-ventilated, net-sided tunnel. It's too wet here to flower them outdoors. What I've found is that each variety (and I only grow one plant of each) has its own natural flowering time. It may vary a little from year to year, but only by a few days. *Casablanca*

By Tamara Bliley

Mycorrhiza is a beneficial fungus that forms a symbiotic relationship with plants. It plays an important role in plant nutrition by attaching to the plant's fine roots. The plant, through photosynthesis, makes sugars and supplies it to the fungus which then supplies the plant with added water and nutrients, such as phosphorus.

This offers major advantages to the plant by greatly increasing the contact surface to facilitate the transfer of nutrients. Chrysanthemums are heavy feeders, so more fertilizer uptake will result in bigger and better blooms.

When you buy sterilized soil, it is void of mycorrhizal fungi, so adding a small amount to each pot or adding to a raised bed is recommended.

There are some micronutrients like iron that are locked up or unavailable to plants. Iron deficient plants are weak and more susceptible to disease. Mycorrhizae can unlock those nutrients to give to the plant.

These fungi act like a vaccine, which primes the plant to have an

immunity response when attacked. The fungi will excrete enzymes that are toxic to soil borne organisms like nematodes. Mycorrhizal fungi help with soil fertility while also helping plants be more resistant to the effects of drought, alleviate salt build-up, and disease.

In open ground, plants have a way to talk to each other through these fungi. As a way to warn each other that an attack by aphids is happening, the plant can signal other plants so both plants can release volatile organic compounds that repel aphids and attract parasitic wasps to kill the aphids. The fungi do this to protect their food source.

Mycorrhizal fungi help protect plants from soil that has high metal concentrations, like zinc, by binding to the zinc but not transferring the zinc to the plant.

Plants grown in sterile soil often perform poorly. Adding some fungi will enhance the soil to better feed your chrysanthemums.

This information was from Wikipedia and other sources.

Across the Pond, cont....

seems to be at its best from 20 October - 1 November, *Lighthouse* (a smaller plant) from 25 October - 5 November, *Purple Rain* from 1 November - 10 November and *Golden Chalice* 10 November -20 November.

If the bottom line is not straight and neat and tidy, I take a piece of discarded hose pipe and form it into a circle and cut a small piece of bamboo cane and insert it in the ends to make a circle. I place the plant in its pot on a drum so I can get under it, tie the hose/ring from the top of the canes up under the plant to get a good bottom line.

I never take my Charms/Mounds to the show because they would fill my estate car/station wagon, and there'd be no room for my blooms. During COVID, we had virtual shows for them, and I'm pleased to say I had blue ribbons for them. Because *Golden Chalice* is last to bloom its easily the biggest, it almost got to 5 ft across last year.

NOTE: *Golden Chalice*, 7C Yellow; and *Casablanca*, 7C Yellow are available in the USA. *Lighthouse* and *Purple Rain* are NOT available.

JUDGES' PAGE

By Rita Rover & Jeff MacDonald--
Judges Schools and Credentials
Committee Co-Chairs

Congratulations To New Candidate Judges

The Judges Schools and Credentials Committee would like to congratulate **Lillian Jones** and **Joan Matthews** of the Central Carolina Chrysanthemum Society, **Anette Lloyd** of the Blue Ridge Chrysanthemum Society, and **David Trine** of the Portland Chrysanthemum Society for successfully completing the first step to becoming Accredited Judges by passing the Candidate Judges exam which was held in June.

They will be added to the Judges Roster, Class of 2023. Please do not forget to invite them, and **Chuck Turner** (who passed the exam earlier this year), and other Candidate Judges to assist with judging your show this fall (lillian.jones@mums.org, anette.lloyd@mums.org, joan.matthews@mums.org, david.trine@mums.org, charles.turner@mums.org). It is important for all Candidates to judge a required number of shows in order to obtain credentials to become Accredited Judges.

NCS is still in need of additional judges. Please seriously consider applying to take the exam when offered in 2024.

We would also like to express our appreciation to their instructors, **Irene Bernal** and **Renee Pengra Wherely**, who held several Zoom sessions reviewing content and practice questions with the candidates in preparation for the exam. In addition, we would like to thank the volunteers who proctored the exam: **Carol Dukes, Janet Guthrie, and Conrad Russell.**

New Novice & Youth Bowersox Trust Awards

By Galen Goss

Last December, I wrote an article describing the new Bowersox Trust awards. At the 2022 Board of Directors meeting, the Judges Schools and Credentials Committee (JSCC) was charged with developing rules and guidelines for the awards. The committee's recommendations differed from what I reported in the December 2022 article. The committee's recommendations were voted on and approved by the Board in a vote this past spring. The Novice and Youth Awards are available for this fall's chapter shows as described below:

1. **Novice Awards:** Each chapter may award one \$100 cash award to the Best Novice entry in Section G of the NCS Show Schedule. The recipient will also be presented with a certificate. The judges at the chapter show will determine the winner of the award.

2. **Youth Awards (Exhibitors 18 years of age and younger):** Each chapter may award one \$100 cash award to the Best Youth entry in Section H of the NCS Show Schedule. The recipient will also be presented with a certificate. The judges at the

chapter show will determine the winner of the award.

The certificates shall reflect the donor's name as **Bowersox Trust In Memory of Rita Bowersox**. The cash awards will be sent to either the chapter for presentation or directly to the recipient by the NCS Treasurer upon notification by the chapter.

The two awards should be added to your show schedules at the bottom of the NCS Medal Certificates list.

Bowersox Trust Awards - Certificate plus \$100 cash award

For Best Entry by each of the following exhibitors:

Best Novice entry, Section G, minimum 90 points

Best Youth entry, Section H, minimum 90 points

The December article also described an award for the Best Seedling or Sport in Section K. The JSCC is continuing to work on the rules and guidelines for this award. The \$1,000 cash gift from the Bowersox Trust to encourage a local NCS Chapter to host the annual NCS National Show remains as described in the December article.

Order NCS Medal Certificates Early

By Eileen Halcrow, Awards Chair

Order NCS Medal Certificates early along with a copy of your show schedule to ensure receipt in time for your show.

Gold, Silver and Bronze Medal Certificates are provided by the National Chrysanthemum Society for chapters to use in their shows. They must be requested two months in advance of the show date and awarded only in accordance with prescribed rules. A printed copy of the show schedule designating eligibility for the Medal Certificates must accompany requests. A completed awards report sheet supplied by the com-

mittee and any unused certificates must be returned immediately after the show.

Each certificate may be awarded only at the discretion of a team of at least three NCS Accredited and/or Master Judges to exhibits that merit the award and meet the criteria. Exhibits are to be considered for the Medal Certificates in the order designated in the *Show and Judges Handbook* or as amended and published in *The Chrysanthemum*.

Send requests by e-mail to eileen.halcrow@mums.org or by mail to Awards Chair Eileen Halcrow, 19851 Highcrest Circle, Santa Ana, CA 92705.

CLASSIFICATION CHANGES & NEW INTRODUCTIONS 2023

New Introductions for 2023

The list of new introductions from King's Mums, Ball Seed, Capobianco Creations, Dummen, North Carolina Flower Farm and Oregon Chrysanthemum and Hostas are listed below.

Cultivar	Class	Color	Resp.	Use	Nursery	
Artistic	7C	P	M	p	1	2023
Artistic Armin Red	7C	R	M	p	1	2023
Artistic Spiderman	10B	Y	M	p	1	2023
Beatrice Orange	4C	LB	E	g	1	2023
Cardinal Time Red	7C	R	E	p	1	2023
Dorothy Bronze	4C	B	E	g	1	2023
Ellen Golden Bi-color	4C	Y/B	E	g	1	2023
Grandview Yellow Improved	7C	Y	M	p	1	2023
Jericho Bi-color Red	7C	R/Y	M	p	1	2023
Lucy Bi-color Bronze	4C	B	E	g	1	2023
Milkshake Bannana Yellow	4C	Y	L	g	4	2023
Milkshake Berry Pink	4C	P	L	g	4	2023
Milkshake CherryPurple	4C	Pu	L	g	4	2023
Milkshake Coconut White	4C	W	L	g	4	2023
Milkshake Kiwi Bronze	4C	B	L	g	4	2023
Milkshake Papaya Orange	4C	LB	L	g	4	2023
Mount Juno	4C	W	M	p	1	2023
Navarro Bronze	7C	B	E	p	1	2023
Pamela Orange	4C	LB	E	g	1	2023
Pamela Pink	4C	P	E	g	1	2023
Pamela White	4C	W	E	g	1	2023
Pamela Yellow	4C	Y	E	g	1	2023
Tribeca White	4C	W	E	g	4	2023
Zelda	4C	Y	E	g	1	2023

Relisted Old Cultivars Previously Dropped

Please contact the Classification Committee if you are growing any unlisted or unregistered cultivars. Reported cultivars will be reviewed and included in the next edition. These cultivars are **NOT ELIGIBLE** for the New Introduction Class.

Cultivar	Class	Color	Resp.	Use	
Wheel of Fire	9A	R	L	d	1981
Green Goddess	1A	G	L	d	1956

Reported New Cultivars Not Commercially Introduced

Please contact the Classification Committee if you are growing any unlisted or unregistered cultivars. Reported cultivars will be reviewed and included in the next edition. These cultivars are **NOT ELIGIBLE** for the New Introduction Class.

The 2023 Classification Changes and New Introductions are listed here. To keep your *Handbook on Chrysanthemum Classification* up to date, please remove and insert the page(s) into your existing Handbook.

Copies of the 2021 edition of the *Handbook* are still available from the Ways and Means Committee. Cost of the Handbook is \$15.00 and 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" or in the June 2023 issue of *The Chrysanthemum*. A 2023 Revised *Classification Handbook* will be printed when current 2021 inventory is sold.

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

CLASSIFICATION CHANGES & NEW INTRODUCTIONS 2022

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

Cultivar	Class	Color	Resp.	Use	
Anderton Gold	8B	DY	M	d	2023
China Belle	1B	PU	M	d	2023
Divine Music	11A	B	M	d	2022
Floating Lights	10A	LB	M	d	2023
Folly	5/4B	Y	M	d	2022
Gold Standard	10/11A	Y	L	d	2022
Golden Dragon	11A	Y	M	d	2022
Golden Phil Houghton	1/2AA	DY	L	d	2023
Green Flash	11A	G	L	d	2022
Ice Storm	11A	W	M	d	2022
Jefferson	1AA	Y	L	d	2022
Krabi	4A	LB	M	d	2022
La Luna	11A	W	M	d	2022
Palladium	11A	W	L	d	2023
Pink Sprinkle	11A	P/W	M	d	2022
Primrose Peggy Ann	2AA	DY	L	d	2023
Rainbow's End	1/11A	B/R	L	d	2022
Ring of Fire	11A	Y/R	M	d	2022
Snow Day	11A	W	M	d	2022
Sweet Peaches	11A	P	L	d	2022
Yellow Gigantic	1/2AA	DY	L	d	2023

Cultivar Amendments—2022-2023

After the 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
Classification Amendments		
Rainbow's End	11A	1/11A
Grape Queen	1A	1B
Fall Charm	4C	4B

Classification Handbooks for 2023

By Jeff MacDonald, Classification Committee Chair

A new edition of the *Handbook on Chrysanthemum Classification, 2023* edition, is currently ready, and will be available for purchase by mid-September. If you are growing cultivars not currently in the *Handbook*, please send a photo and the cultivar information to the Classification Committee before June 1, 2024, for inclusion in the 2024 edition.

Please reserve your copy(ies) early to ensure adequate printing quantities. Reserve your order through Sharon King, Ways and Means Committee Chair. The cost of the *Handbook* has not been determined at this time, and the updated cost will be announced when the final cost is known. (Please check NCS website: www.mums.org.)

Older editions of the *Handbook* will always be up to date if you remove the page(s) in the September issue of *The Chrysanthemum* and then insert into your *Handbook*. We have found this to be the most convenient way to keep the information updated and avoids the need to repurchase the *Handbook* yearly.

The 2023 edition will only be offered as the *Handbook* without the Appendix. The 2002-2023 Appendix will be sold separately in the future to reduce printing costs.

Remember to purchase the 2023 *Bloom Finder* through Ways and Means or request a free copy from the Classification Chair, Jeff MacDonald

If you have any questions or need further assistance, please e-mail Jeff MacDonald, Classification Committee Chair, at jeff.macdonald@mums.org; or Classification Committee Members Martha Hackett at martha.hackett@mums.org; Penny Amato at penny.amato@mums.org; Camilla Ng at camilla.ng@mums.org; Tamara Bliley at tamara.bliley@mums.org.

NCS Publications, Products & Show Supplies

The most current order forms for NCS publications and products are available on the NCS website (www.mums.org). You can order on-line or can print the order forms to mail to the Ways and Means Committee. Remember to order your show supplies (ribbons and entry cards) early. Contact Sharon King at sharon.king@mums.org if you have questions.



San Gabriel Valley Chrysanthemum Society held a Plant Sale at the Los Angeles Arboretum, June 3, 2023. From left to right: Hatsuko Loehle, Herb Lehman, Christine Leidelmeyer, Georgene Salisbury, Norma Roxas, Douglas MacClennan, Ardhra Ashokan & family, Irene Bernal, George MacDonald, Jessica Le, Renee Wherley, Bruce W. Zisterer.

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Barry Baertlein 503-899-3294
barry@oregonchrysanthemumsandhostas.com

Classification of Bloom Forms -- A Lot Has Changed Since 1954

Reproduced from Handbook No. 1, Show Handbook, 2nd Edition, Printed March 1954

NOTE: The following shows how *Chrysanthemums* were classified in the USA in 1954. The article referenced is believed to be the earliest classification system used by NCS. We are sure there might be other older examples but little is known about those systems. Our current system of classification has evolved over the years, and the last major reorganization of classification was in the early 1980s and has remained until this date the NCS standard. As you can see, major changes were made in the *Irregular Incurve* and *Reflex* sections and in the *Spider* and *Quill* sections. You will note that the class numbers have changed from 15 classes in 1954 to 13 classes in 2023. Removed and condensed are the *Spider* and *Thread* classes. In the mid to late 1970s, there were three sections for *Spiders*: fine florets, medium florets, and course florets. There were two sections for *Single* and *Semi-Double*, now grouped as one. In the 1954 system, there was Class 12 single spoons and Class 13 double spoons. Again, they are now classed under Class 9 Spoon. We hope that you will enjoy the following article and appreciate what our past leadership has done to simplify classification over the years as cultivars change and evolve.]

CLASSIFICATION OF CHRYSANTHEMUMS BY BLOOM TYPE

The *Chrysanthemum* bloom is made up of ray and disk florets grouped in a head and carried on a receptacle. Both ray and disk florets are evident in the original single or daisy form.

In this type, there is a row or rows of straplike petals that extend

outward from the bloom center or disk. These straplike petals are the corollas of the ray florets. Ray florets are imperfect flowers--that is, they have pistils but lack stamens. The center of the disk is made up of florets with short, vase-shaped corollas. These are disk florets. Disk florets are perfect. They contain both stamens and pistils.

The ray florets vary greatly in both length and form. For instance, in the *Single* type, they are flat or straplike. In the *Thread*, they are long and tubular; in the *spoon*, they are tubular for a portion of their length and then open at the tip to form a bowl or spoon, or the blade of a spatula, the tubular portion being the handle in either case. The presence or absence of stamens indicates the origin of such derived or modified corollas. The long, tubular petals of some thick-tubed *Spiders* are modified ray florets. In other cases, they show their origin from disk florets.

Typical disk florets remain relatively short and retain the stamens and pistils and vase-like form. There are, however, some variations of these typical florets and a different bloom form results. For instance, in *Anemones*, they are longer than in the *Singles*. This results in the disk being more prominent and hemispherical in form.

The occasional presence of rudimentary stamens in the thin tubed *Spiders* and *Threads* is a modified corolla of disk florets. Again, in the *Double* forms, the

extra ray florets will be formed at the expense of disk florets. The classification of a bloom form that follows is based on such modifications of the florets.

DIVISION A

Ray florets with straplike or ligulate corolla. Disk florets vase-shaped and relatively short.

Section 1. Disk conspicuous, made up of unmodified disk florets surrounded by one or more rows of ray florets.

CLASS 1: SINGLE

Straplike ray florets in not more than five rows. Disk flat, with disk florets short. Historical Cultivars: *Elsie*, *Valencia*, *Bamboo*, *Kristina*. Modern Cultivars: *My Love*, *Don't Start*, *Edwin Painter*, *Icy Isle*, and *Rage*.

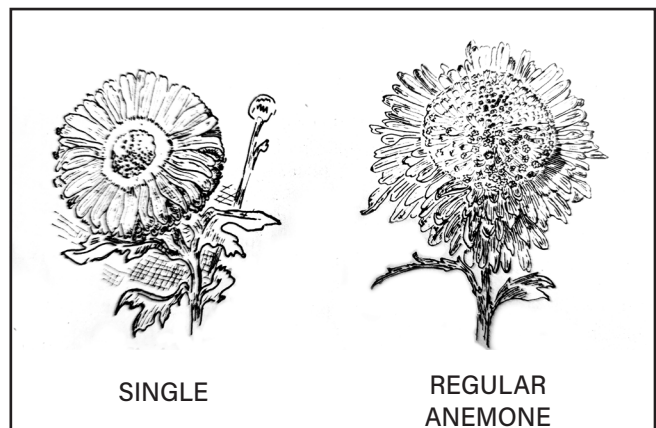
SUBCLASS BROAD-PETALED SINGLE

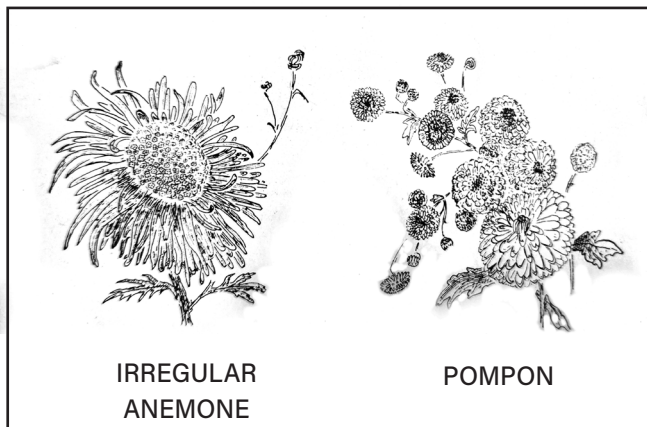
Ray florets fewer and much broader in proportion to their length than typical *Single*.

- Small, blooms not over 2" in diameter.
- Intermediate, blooms over 2" but not over 4" in diameter.
- Large, bloom over 4" in diameter.

CLASS 2: SEMI-DOUBLE

Ray florets in more than five rows; disk apparent in fully open blooms, flat, with short florets. Over-





Section II. Disk may be present and concealed or the disk florets may be scattered singly or in small groups among the ligulate florets or absents. In any case, if present, the disk florets are concealed by the numerous ligulate florets that give character to the bloom.

Class 5. Ligulate petals longer than in Class 5 but broader in proportion to their length, incurved and overlapping, smoothly and regularly. Petals not twisted. Bloom globular when fully developed. Historical Cultivars: *J. W. Prince, Ambassador, Mrs. H. E. Kidder, Major Bowes, Betsy Ross.* Modern Cultivars: *Lake Landers, Heather James, George Couchman, Derek Bircumshaw.*

all, may resemble any class in Division A. Classification for bloom size same as Class 1.

CLASS 3: REGULAR ANEMONE

Ligulate ray petals in not more than five rows, broad, evenly spaced and equal in length. Disk florets longer than in the singles. Disk prominent, approximating a hemispherical form. Historical Cultivars: *Norma, Frances Schoen, Park, Little America.* Modern Cultivars: *Seaton's Ruby, Anderton, Lilli Anderton, Daybreak, and Powder Puff.* Classification for bloom size as in Class 1.

CLASS 4: IRREGULAR ANEMONE

Like Class 3 except that the ray petals are irregular in length, may be flat or quilled and when flat, may be twisted. Are apt to be large, but are subdivided by size as in Class 1. Historical Cultivars: *Tuxedo, Raymond Mounsey,* Modern Cultivars: *Flying Saucer, Yellow Flying Saucer, Prom King and Prom Queen.*

GROUP A. LIGULATE COROLLAS INCURVED

CLASS 5: POMPON

The disk may be present and concealed by the ligulate florets or the disk florets may be scattered singly or in small groups among the ligulate florets. Disk florets concealed.

The ray florets are short, broad and typically incurved to form a globular bloom, though smaller blooms are often flattened and buttonlike. Historical Examples: *Edith Roberts, Thyra, Lillian Day, Mary Mac Arthur.* Modern Examples: *Moonbeam, Feeling Green, Conquisita, and Baby.*

- a. Small, less than 1-1/2" in diameter.
- b. Intermediate, blooms at least 1-1/2" but not over 2-1/2".
- c. Large, blooms over 2-1/2" but not over 4". Blooms of this type larger than 4" are placed in Class 6, Regular Incurves.

- a. Small, blooms over 4" but not more than 6".
- b. Large, over 6".

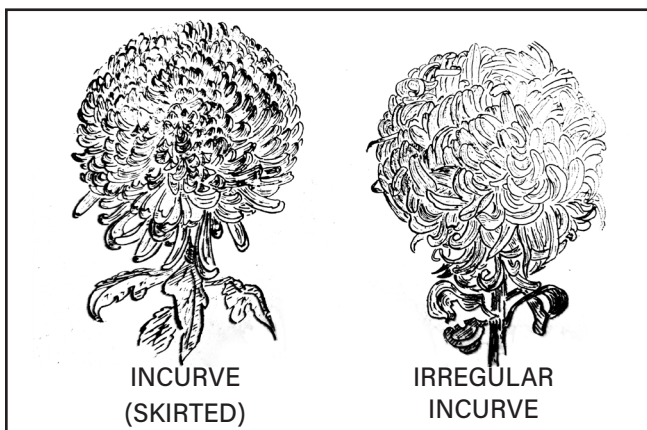
SUBCLASS SKIRTED INCURVE

Lower tiers of petals not incurved, standing out at right angles to the stem as a ballet dancer's skirt, or hanging vertically to form a skirt that conceals the upper portion of the stem. Like incurves in Class 6. Example: The *Indianapolis* group.

CLASS 7: IRREGULAR OR JAPANESE INCURVE

Much as the Regular Incurve except that the petals are even wider in proportion to the greater length. The distinguishing character is the twisted ligulate petals which gives the bloom an open, airy appearance and makes for irregular overlapping of the petals. The blooms are globular when fully open. Examples: *William Turner* [still grown in 2023], *Louisa Pockett.*

- a. Small, over 5" but not over 7".
- b. Large, over 7" in diameter.



CLASS 6: REGULAR OR CHINESE INCURVE

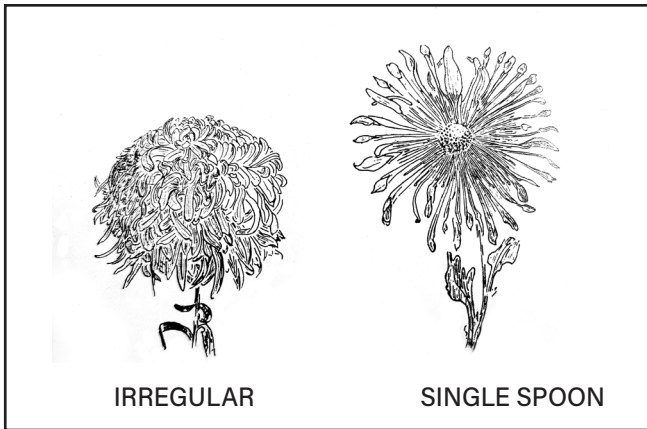
Disk florets are hidden as in

GROUP B. LIGULATE COROLLAS REFLEXED

CLASS 8: REFLEXED OR DECORATIVE POMPON

All the characteristics of the Pompons in Class 5 except that the ligulate petals are reflexed instead of being incurved. Subdivisions for size

Continued on next page...



Classification from 1954, cont...

vars: *Mellow Moon*, *Grandchild*, *Autumn Fire*.

Subdivisions for the bloom size as in Class 1. Blooms over 4", however, are placed in Class 10 or Class 11.

DOUBLE AND DOUBLE SPOON

Same as the Single Spoons, Class 12, except that the ray florets occur in more than five rows and the disk may not be apparent. Examples: *Yellow Spoon*, *White Spoon*, *Magenta Spoon*. Subdivisions for size as in Class 1.

CLASS 13: QUILL

Ray florets elongated and tubular with tips usually spoonlike but may be closed to the tip and curved or rarely hooked. The bloom is fully double with no disk apparent. Examples: *Peggy Ann Hoover* [still grown in 2023], *Rayonnante Pink*, *Buff*. Subdivisions as to size as in Class 1.

CLASS 14: THREAD

Ray florets long and slender, tubular, may be straight or gently curved. Tips are closed and straight or slightly curved but not significantly coiled or hooked. The disk may or may not be apparent.

- a. Small, blooms not over 6" in diameter.
- b. Large, blooms over 6" in diameter

CLASS 15: SPIDER

Ray florets long and tubular, usually more or less curved and twisted. The tips may be open and spoonlike or closed, but in either case, they should be definitely coiled or hooked. The disk may or may not be apparent. Historical examples: *Marilyn*, *Bunbu*, *Paul Millar*. Modern cultivars: *Fleur de Lis*, *Golden Rain*, *Chesapeake*, and *Wind Dancer*. Subdivisions for size same as Class 14.

Any classification of chrysanthemum bloom forms is of necessity somewhat arbitrary, and there will always be varieties that defy precise classification. This is due to the remarkable variability of the chrysanthemum and genetic relationship of

Continued on next page...

are the same as for Class 5. Specimens of this type larger than 4" are classed with the Regular Reflexes, Class 10. Historical Cultivars: *Yellow Dot*, *Pink Dot*, *Capt. Cook*. Modern Cultivars: *Sally*, *Bronze Dot*, and *Limerick Lime*.

SUBCLASS CARNATION-FLOWERED

Ligulate petals lacinated as in a carnation. Otherwise as in Class 8.

CLASS 9: DECORATIVE OR ASTER-FLOWERED REFLEXES

The ligulate petals are longer and narrower in proportion to their length than in the Pompons. They are apt to be pointed. The inner petals may incurve for a time but are reflexed in the fully open bloom. The bloom is flatter than in the Pompon. The width may be double or triple the depth, but the disk should not be apparent. The majority of the double garden types are in this class. Historical Cultivars: *Avalanche*, *Red Velvet*, *Elizabeth Hood*, *Caroline Yosick*. Modern Culti-

CLASS 10: REGULAR OR CHINESE REFLEX

All characteristics of the Regular Incurve, Class 6, except that the ligulate petals are reflexed. Subdivisions for bloom size same as Class 6. Historical Cultivars: *Garnet King* [still grown], *Gold Lode*, *Mohawk Chief*.

CLASS 11: IRREGULAR OR JAPANESE REFLEX

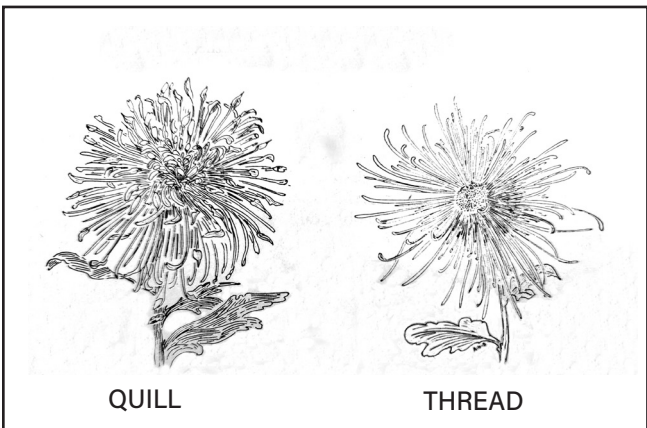
All characteristics similar to Irregular Incurves, Class 7, except that the ligulate petals are reflexed. Examples: *Duke of Kent*, *Greer Garson*, *Jessie Habgood*.

DIVISION B-- TUBULAR FLOWERED

CLASS 12: SPOON-SINGLE

Ray florets regular and tubular, opening at the end to form spoonlike or spatulate tips and in not more than five rows. Disk conspicuous and flat. Examples: *Brilliance*, *Kimie*, *Yomei*, *Charm Spoon*, *Ivory Spoon*. Subdivisions for size as in Class 1. Spooned Anemones should be entered in Class 4, Irregular Anemones.

CLASS 12A: SEMI-



Make it easy on yourself

By Madeline West

Photos by Madeline West

In this issue let's strive to experience floral designs in another light -- creative, fun and different -- and begin to establish your own style.

- Choose your idea for a design. Gather your components; vase, line material, a dragon, a violin, a shiny vase??
- Decide what colors to use. What is the show theme? What are the class titles and types of designs required?
- Collect dry or fresh branches with personality. Place your line material first then add your flowers and leaves.
- Attend arranger design classes in your area to get some valuable tips. Are your components complimentary to the design? Do they interpret the theme?
- If there are no design groups in your area, set up a coffee klatch and practice doing simple designs, then keep progressing!

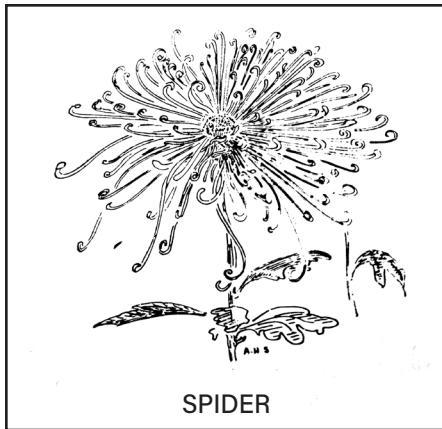
Clockwise from bottom left:

Do You See My Dragon? by Madeline West, from "Where the Wild Things Are" Design class uses a toy dragon and yellow mums with a plastic structure and various dried elements.

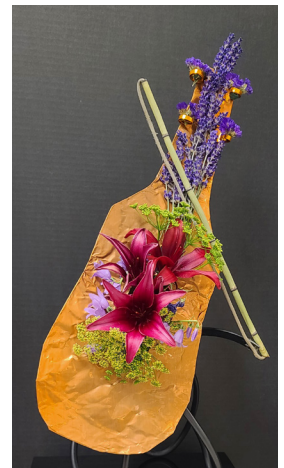
A Christmas design interpreting a harp constructed of two pieces of knarled wood glued together for the harp frame, garden grasses for the strings, poppy seed heads, and placed on a wooden base. Design by Mary Baughn, (by permission) twin sister of Madeline West.

A Creative design by Joyce Komnich (by permission) of a piece of copper cut in the shape of a violin, with the bow made of horsetail, and horsetail leaf, bluebells, dill and lavender and hung on a wall.

A raised design by Madeline West done on the inside of a piece of bark which is mounted on a two pronged metal holder. Any flowers, greens can be used in this type of design.



the various types. Practically, it is due also to our demand for novelties and a nursery's ability and desire to satisfy the demand. The impossibility of any classification providing a precisely bounded place for every chrysanthemum bloom should be taken into consideration by the chair of the committee that is responsible for the proper classification of the blooms as they are entered in the show as well as by those who make up the horticultural schedule. Even in the most amplified schedule, specimens may be offered for entry that defy classification. In such cases, special classes should be made if the entry is worthy rather than force them into a place that they do not fit. It may also be found advisable, due to number of entries or other local conditions, to vary the bloom limitation, or to modify otherwise the classes within a type. If this is done, all modifications of this official classification should be clearly stated in the schedule, and proper class number cards should be made to accompany the entry on the show table.



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 sheeting 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



Disbudding: (top photo) If large blooms are desired, excess buds should be removed when they are the size of small peas. A crown bud has a central (usually the largest) bud with several smaller ones surrounding it. Carefully remove all the side buds by rolling them off with your thumb and forefinger or by cutting them out; then remove all buds from the leaf axils in a similar manner (bottom photo). A terminal bud (not shown) is a single bud at the top of the stem; leave it in place and remove all buds from the leaf axils below it. Photos by Dan Schadler.

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 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 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

Continued on next page...

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Mum Growing Guide, cont...

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.

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 overwater) 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.

Pacific Northwest

August - September

Around Labor Day when the buds are starting to break the membrane, bring them into a shelter. Wash the pots thoroughly around the bottom to remove moss and any residue that may have formed there. Clip off

all excess roots that are hanging out of the drain holes and pick off all old and damaged leaves around the bottom of the plant because they harbor pests and fungi. Spray the plant with a good fungicide, insecticide, and miticide, taking care not to get any of the spray on the blooms. Watch for and destroy earwigs, worms, caterpillars etc. They can wreck blooms very quickly.

Top-dress the pots for one last time. Add about ½ to ¾ in. of your 9" mix or some compost to the pot surface and level it. Top-dressing the plants helps to finish them and also promotes new growth for next year's cuttings. Now is the time to cut off

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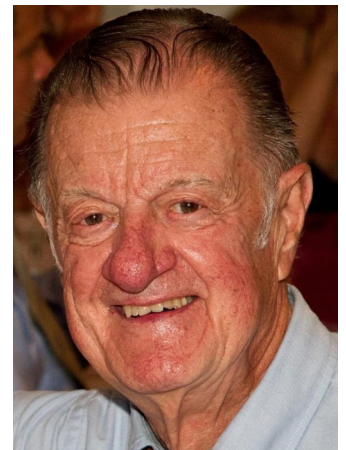
IN MEMORIAM

Jim Dunne

James Edward Dunne, Sr. left us on Friday, June 9, 2023. Jim lived a long, happy, full life of 93 years. He is survived by his loving wife of 65 years, Geraldine (Gerry) Dunne (nee Goss), his six children, 19 grandchildren, and 10 great-grandchildren, whose frequent visits were the joy of his life.

Anyone who knew Jim knew he was an extrovert and was happiest when he was surrounded by family and friends. He loved to sing, laugh, and dance. A very talented and artistic man, he attended Pratt Institute, a prestigious Art School in Brooklyn, NY, and was a prolific painter and photographer. Jim

was a member of the Old Dominion Chrysanthemum Society (ODCS) for 19 years. He served in many roles for ODCS, including President in 2002 and 2003 and publicity chairman for most of the 19 years. Jim flourished at the ODCS Annual Plant Sale – he was a natural salesman. He received the ODCS Member of the Year Award in 2001 and the prestigious ODCS Nels and Ginny Johnson Award for Outstanding Service in 2009. In 2008, Jim was the recipient of an NCS Outstanding Service Award for his contributions to ODCS. Jim served at the national level also where he was the NCS Advertising Manager from 1998 until 2022.



Mum Growing Guide, cont...

(not tear out) all new basal shoots that are developing. If your pot exhibited significant moss growth, add ½ tsp of hydrated lime to the top dress mix to help sweeten the soil. For colored blooms (not white or yellow), you may add ¼ tsp of ferrous sulfate (Fe_2SO_4) to enhance the color. In particular the *Athabasca* cultivar needs this Fe_2SO_4 to show a significant ring of pink tips on its blossom. Pink cultivars in general look more intense if they are well fed. Additionally, if you have not started feeding potash in your fertilizer formula then add ¼ to ½ tsp sulphate of potash to the top mix to harden off the plant and keep the bloom petals from being too soft.

Cut back to the final selection of laterals. Stake them securely and start getting the support shingles attached to the stem and the support stake. Stake and tie up all selected laterals and add support shingles under the blooms. Keep moving the support shingle up under the bloom as the neck stretches. Use support shingles to straighten the neck and keep the bloom flat atop the stem. Finally, remove all side laterals as they appear on the selected stems below the bloom so that the bloom is all that is left.

For the bloom cycle, we reduce the fertilizer to half-strength immediately after taking the bud and at the same time switch to a different fertilizer formulation that is higher in potash content. Basically, we mix ½ tsp of our basic 20-9-20+ fertilizer with 1/4 tsp to 1/2 tsp of sulphate of potash per gallon of water. After the petals begin to open it is safe to increase the strength of this solution gradually up to 2 times or less of this formula to promote blossom growth.

Note: It's easy to overfeed the plant at this time and produce ragged, cocked, or deformed blooms;

so increase the fertilizer sparingly. Watering is different at this stage also. Water more sparingly using about 1 pint per watering and do not water when the temperature is over 75 degrees. Use a small container for watering to keep from spilling water. Keep the finishing area dry and clean.

October - November

Once the membranes on the buds have broken and some petal tips are showing, it is imperative to get the pots under some kind of shelter where they will remain as the final bloom develops. The watering and fertilization program must also be modified to assure proper bloom development, and pest management and fungus control need to continue throughout bloom development.

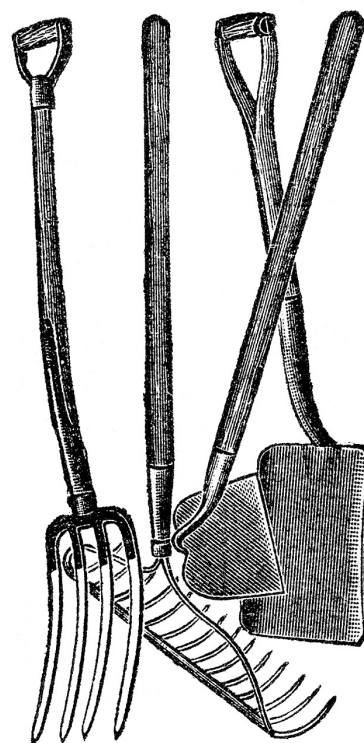
Shelters can be garages, carports, greenhouses or temporary wood or plastic structures. Basic requirements are shelter from rain, dew, and winds; adequate daytime light (though it can be shady) or light supplements; temperature control; and ventilation.

Maximum temperature should be kept below 80 degrees F. if possible. Above that temperature, the probability of bloom damage due to petal rot is high. If the shelter is exposed directly to the sun in early September, the temperature within it can skyrocket. Big fans can be used to increase ventilation and keep the temperature down.

In general, try to keep the temperature between 50 to 70 degrees for most of the finishing, but for the last few weeks of October, letting the nighttime temperatures dip into the 40s will probably accelerate your bloom development. If your temperatures dip into the 30s you will probably get pinking on the edges of some blooms.

Considerably less light is required during the bloom cycle than when the plants are actively growing, but nevertheless it is necessary in most cases to provide supplemental light in the area where you have sheltered the plants. If you are finishing in a greenhouse or similar structure, it will probably be necessary to add light filtration in the ceilings as the opening blooms generally cannot accept full sunlight through clear plastic or glass. You can use shade cloth or old white sheets to reduce the amount of sunlight.

The most common and functional method to supplement light is by hanging fluorescent light fixtures in the ceiling. Plain white lights work or you can buy Grow Lights which are reputed to be better. You can run the lights all day, 8-10 hours during the day or all night if you so choose. I prefer just the time during daylight hours. Some growers say that, in general, reflexing varieties like it light and cool while incurves usually like it warmer and less light.



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Have mums, will travel ...

Tamara Bliley, Portland C.S. and NCS International Relations Chair, traveled to Sacramento, CA, recently and held a two-day workshop on growing and showing mums for members of the Sacramento C.S. She shared her best tips for winning blue ribbons at the home of Sharon and Jon Peterson. Photo by Lucy Hackett.



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An extravaganza ...

... of mums in New York City's Central Park. Photo by Eileen Halcrow.

