

Mum Growing Guide by Region: June - August

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 debranched 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.

Northern Virginia and Washington, D.C. Area

June:

A mixture of 1½ teaspoonful Malathion, 2 tablespoons Captan or other fungicide per label, and 1 teaspoonful of a detergent to a gallon of water should be applied as a spray at 10-day to 2-week intervals. It is helpful to add a foliar plant food to the spray, using manufacturer's directions for strength. This should be started when growth starts in spring and continued until color begins to show in the buds. Begin pinching garden hardy and disbud types to encourage branching when about 6 inches tall. The large flowering types of chrysanthemums should be debranched now.

July 1 - 15:

Some of the taller garden hardy types and all of the disbud types will require support. This should be started when the plants are about 12 inches tall. Three-foot stakes for the garden har-



Rooted cuttings of the cultivar *Dragon* were grown in 4-inch pots for four to six weeks and then transferred to 2-gallon pots, three plants per pot. They were pinched when moved to the 2-gallon pots and all branches (laterals) were allowed to grow. After about a month, they were ready for debranching and further pinching. The aim was to produce large disbud blooms so only two branches were left on each plant. The growing tip and the two remaining branches were pinched at the same time when the debranching was done. The top photo shows the plants before debranching and pinching; the photo above shows them after debranching and pinching.

dies and 5-foot stakes for the disbuds are ways of supporting the plants.

July 15 - 31:

All the disbud types should receive their final pinch during this period, the early flowering varieties about

July 15 and the later blooming varieties toward the latter part of July or early August. Follow pinch dates given in the catalogs, if these are available. A week or so later seems to work well in the Washington, D.C. area. Do not overlook feeding, spraying, staking, and tying. Water only when the plants begin to wilt and then water deeply.

August 1 - 15:

If you have been negligent in your feeding program, too much harm has not yet been done. From now until color shows is the heavy growing time and frequent feedings should be given. Top dress with 2 lbs. of a good fertilizer to 100 square feet at monthly intervals or better yet, 1 lb. at a two-week interval.

August 15 - 31:

At this time of the season, bugs are more vigorous and plentiful. If you have not been following a spraying schedule at 10- to 14-day intervals, you should start now to prevent irreparable damage. Also, continue pruning, fertilizing, staking, and tying. By pruning, we mean the removal of all unwanted growth. Do it weekly, if possible.

Southwest (Phoenix, Las Vegas)

June:

A covering of 50% shade cloth will be beneficial in protecting the plants from the scorching hot afternoon sun. Remove the shade cloth about the first of October. Fertilize your mums every 1 to 2 weeks in the ground or every 7 to 10 days in pots with a balanced fertilizer such as 20-20-20 or 10-10-10 or 15-30-15. Spray for insects and diseases if necessary. For cushion or garden variety mums begin pinching or cutting off tips of branches to encourage fullness and to control height. Water frequently to keep roots moist.

Do not be concerned with wilting leaves during hours of direct sunlight. Wilting which does not recover after shading or by morning indicates need for water.

A stake should have been put into place at the time of planting in the final destination. Determine whether there will be 1, 2, 3 or more stems allowed to grow for disbuds and how many stems to grow for sprays. Use one stake per stem. The stem should be secured about every 12 inches to the stake. Twist ties are good for this purpose.

July:

Continue watering and fertilizing regime. Apply iron if yellow leaves are present. Generally a final pinch for disbuds occurs by about July 4 to the middle of July. Determine your pinching date to maximize the number of blooms at perfection for your show date. Check with your local chapter for pinch dates. Continue pinching tips to encourage branching and fullness of garden cultivars, trees, cascades and other trained plants. Continue inspecting for insects and their damage. Spray to control if necessary.

August:

Continue watering, fertilizing and insect control regimes. Toward the end of August, be on the lookout for the formation of buds on smaller blooming cultivars. Discontinue pinching if buds are present.

Central Carolina Area

June:

Plants should now be doing well in 3" pots and showing signs of filling their pots with roots. Now is a good time to mix up more potting soil for the next move. 5" pots or raised beds will be their next home. Don't be too eager to pot up your plants, only when they have filled their 3" pots with roots. When a plant is ready to move on, it fairly races into the new potting mix. If it is not at the right stage, it takes a lot longer. If you are growing in raised

beds you will want to go directly from the 3" pot to the beds.

If plants are growing well, small stakes may be needed to support them; secure each stem to a stake (small bamboo cane) with a twist tie. This also applies if your plants are in beds except you can use taller stakes. Continue to spray for pests and fungi.

July:

This is the month when final potting takes place. Place a final stake in the pots. Try to avoid the pots getting soaked after moving into the final pots (8-10" size). If you can keep plants on the dry side, the roots will move faster into the potting mix. Water if they are too dry and wilt.

Between the first day of the month and the 15th of the month, if plants are more than 10 inches tall, it is recommended cutting back to about 6 inches leaving some good green foliage below the cut. The result will be shorter plants and better foliage at bloom time. On large flowered cultivars, select the most vigorous growth that results after cutting back and make no further stops or pinches. A feeding schedule should be started either on a weekly basis or twice a week, at a half-strength use of 20-20-20. Check for caterpillars; if found, remove and spray all plants with a product recommended for caterpillar control. Continue to spray for other pests and for fungi.

August:

Keep lateral growth to a manageable level. Limit the number of laterals; depending upon the type of the cultivar. For example: Class 4 Decorative, Leave 4-5 laterals, Class 6 Pompon, Leave 8-10 laterals, Class 10-11 Quill/Spider, Leave 4-6 laterals.

Towards the end of the month, buds should start to appear. On large incurves, large reflex and decoratives, secure these buds and remove any spare laterals and ground basal

growths as they appear.

This is a good time to top dress plants growing in pots with about ¼- to ½-inch of the same mixture used for final potting. If growing in raised beds, a top dressing will also be beneficial.

Your plants should be growing happily now, so try to visit other growers to see how your plants compare to theirs. Note length and strength of the laterals, leaf color and count, texture and size of your plant. Continue to spray for pests and diseases.

Northeast (New York, New Jersey)

June - September:

Water and feed regularly, refreshing top dressing at least once.

July:

Around July 4th, cut plants down to 6"-10" tall. Stake and tie as needed. Erect shade frame.

August:

Start shading based on cultivar response group and show date. Disbud as necessary for larger blooms, leaving 1 - 3 per plant. Remove excess laterals that are forming sprays.

San Francisco Bay Area

June:

By now, your plants should be well rooted and ready to place into the ground. Choose a well-drained location with at least 6 hours of good sunlight. Later afternoon filtered shade is beneficial and helps protect the color of the blooms. Avoid tree and shrub roots. Watch for street and porch lighting as lights at night will delay your blooms. Also, watch for car lights.

Prepare soil a few weeks before you plant your cultivars. Additions of animal manure, peat moss and perlite are beneficial. Addition of superphosphate at a ratio of about 4 to 5 pounds per 100 square feet is advised. Dolomite lime or gypsum at a rate of 2 to 3 pounds per 100 square feet is also beneficial.

We recommend a mixture of a box of each of the following products: bone meal, superphosphate (if you did not add it before), blood meal and Osmocote (3 pounds). Mix well in a 5-gallon bucket. Sprinkle 2 tablespoons into your planting hole and mix thoroughly, adding 2" of soil on top.

When planting, ensure that your plants are the same level as they are in your pots. Do not plant them too deeply. Place a small stake beside each plant. Tie each plant as they grow with twist ties, but leave the tie loose enough for the stem to expand. Water your plants well after planting and shade if the weather is hot. We recommend planting about 18" to 24" apart. If you choose to grow 1 or 2 blooms per plant, 18" spacing is good, both for air circulation and insect and disease control.

For potted plants, the potting mix should be made with the same mixture as your soil preparation. Remember that potted plants require more water and fertilizing than plants grown in soil beds. It is recommended you move your plants from 2" pots to 4" pots and then 6" or 1-gallon (or larger) pots. This will build stronger root systems. Follow the manufacturer's feeding schedule with your fertilizer of choice.

Pinching your plants should be almost complete by late June in the Bay Area. We recommend a stop date of May 25 through June 1 for the first pinching and June 1 until about July 1 pinch date for second crown.

July:

Spray for insects weekly, if needed. It is better to control rather than cure an insect infestation. Aphids and green worms are our worst pests. Green caterpillars cause the most damage. Also, watch for leaf miners. Systemic controls work best for most insect control and mixing small amounts of insecticide in a spray bottle and spraying only the insects that you see may be all it takes.

Earwigs are another common pest that are rarely seen during the day. Moist, rolled-up newspaper provides protection for earwigs to hide, and these can be collected and emptied daily. Scouting your growing beds at night with a flashlight may enlighten you to insects that you don't see during the day.

Watering plants in the ground may be needed every 5 to 7 days, more often in hot weather. Pots will require more watering: about every 2 to 3 days. Avoid watering in the heat of the day as you will cook the roots! Wilting down of your plants is quite normal. This will cease later in the season after the buds set. During cool, foggy days, you will need to water less often. Remember: The closer you are to water, your growing conditions will be cooler, so adjust accordingly.

Also, during July, you will see your plants starting a large growth spurt. Staking is a must. We recommend at least a 3' to 4' bamboo stake with twist ties. More expensive metal stakes can be purchased, but you will not be able to cut them down later in the season if needed. You can always add to the height of a stake.

July is the month you will start selecting the laterals for your blooms. We recommend growing one to two laterals on the English AAs; two to four on the other classes; and five or more laterals on pompons, spoons, single semi-doubles and anemones.

Continue fertilizing. It is best to feed smaller amounts more often than large amounts at random. Weekly half-strength feeding programs are suggested for potted plants. Your goal is steady growth with leaves getting larger in size as they grow through the season. Addition of Osmocote is beneficial, also following manufacturer's recommendations.

If you are growing Fukusuke, Daruma, or NCS Terminal Sprays, July 15 is the starting date for taking cuttings.

August:

In August, continue your fertilizer and insect control program. Spider mites may become a problem during the warm-to-hot months. Spider mites are difficult to control. Spray the underside of the leaves weekly with a water hose, which will help keep their numbers down. Do not use a hard water stream as you may damage the leaves. Systemic insecticides are highly recommended for spider mites. Remember to not spray during hot daylight hours but early in the day or well before sunset so as not to have wet plants at night, thereby causing mildew. Watch for mildew in areas prone to morning fog.

Watch for early buds late in August. Disbud when the buds get large enough to remove safely. Removing small lateral growth from the leaf axils will be a daily or weekly chore. This concentrates the energy into bud formation.

Sacramento

June:

Continue with your fertilizer program and make sure the mums are watered daily. Continue your pinching process, and spray foliage if it appears to wilt in hot weather.

July:

Your last pinch should be about July 15th in order to get large blooms in November. Feed your plants well in July and August. You may apply a balanced fertilizer to the soil, and also use a foliar fertilizer. Be careful not to over-fertilize and burn the plants. Fish emulsion is safest. Look for possible appearance of spider mites in July. They like the underside of the leaves.

August:

The arrival of the short days of fall (less than 14 ½ 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 these hot August days, keep the plants well watered. If planted in pots, rotate them $\frac{1}{4}$ turn every week so that all blooms get equal amount of sun and stems grow straight.

Pacific Northwest

June - August

Aphids and other pests will quickly appear as the daytime temperatures increase. To minimize infestations, try the 3-in-1 product from Bayer that is a combination fungicide, insecticide, and miticide. It is eco-friendly. Some growers use a Malathion spray but do so minimally; carefully follow the directions on the container to minimize unnecessary exposure.

Fertilizing, pest control and fungus control are of utmost importance. A bi-monthly regimen is recommended.

Fertilize every 2-3 weeks with 20-10-20 starting in early spring (February/March) and by June you can use 12-4-8 mid-season fertilizer during the summer months. In the fall fertilize with 3-15-26. The high phosphate content of the fall fertilizer will help harden off the plant and promote richer color in the flowers. If you are not entering blooms in a show, you may want to use a less costly product like Miracle-Gro®. Use the Miracle-Gro sparingly; one teaspoon per gallon of water is recommended. Miracle-Gro® should be used only on plants having 11 - 20 laterals. Foliar feeding works well for most growers; use only the concentra-

tion of fertilizer that is recommended on the container. This method will effectively increase the size of the leaves on the plants. The *Connie, Duke*, and *Jessie* cultivars, along with *Ralph Lambert, Gigantic, Harry Gee*, and *Elsie Prosser* are all heavy feeders. Consider increasing the fertilizer concentrations on these cultivars. On the other hand, most cultivars that have red- or purple-colored flowers and most incurves require a lighter feeding level such as 2/3 tsp per Gal. Keep in mind that it is very easy to over fertilize.

Use Neem Oil for pest and fungal control. Neem oil extract is organic and works by suffocating (blocking the breathing pores of) insect and mite pests. Neem oil is most active on soft-bodied insect and mite pests such as aphids, whiteflies, spider mites, mealybugs and scales. It is also effective against rust, powdery mildew, sooty mold, and other fungal diseases. Neem Oil is sometimes not needed if the Bayer 3-in-1 product gets the job done. Neem oil is effective for controlling insect pests and fungal diseases on a wide range of plants; check the label or the Cooperative Extension Service for a complete list of its uses. Azadirachtin is an organic by-product of Neem oil production. Azera® and AzaMax® can be purchased online and possibly at local garden centers. These products have a high concentration of Azadirachtin which inhibits the insects' metamorphous process and are effective in controlling over two hundred insect species including mites, aphids, whitefly, mealybug, caterpillars, thrips and Japanese beetle.

Sluggo® and Sluggo-Plus® are an effective deterrent for snails and slugs.

The Bayer 3-in-1 product is a non-organic systemic insecticide, fungicide and miticide which is effective in controlling aphids, caterpillars, leaf miners, whiteflies and other listed pests. It is known to eradicate anthracnose, black spot, powdery mildew and rust.

Immunox® is also a non-organic fungicide that is effective against powdery mildew, black spot, rust, blights, leaf spot, mold and scab.

A General Word of Warning: For any fertilizer, insecticide or fungicide always read the directions for use and take appropriate measures to protect yourself from breathing or touching harmful substances. Consider using a mask and gloves.

By June 15, you should have pinched most of your plants at least once. In areas where cold temperatures occur early in the fall, you can stop pinching by July 15 and get nice blooms before frosts occur.

Your plants will need stakes to prevent the stems from falling over when the flowers open. Place stakes in a 'straight-up' vertical position, as close to the center of the plant as possible so that the laterals won't be stretched. Bamboo stakes that are 4-5 feet tall work well. Garden tape or twist ties can be used to wrap around and hold the stem to the cane. The tape or twist tie can be adjusted later if the stems get tall.