

Mum Growing Guide by Region: January - May

General Rooting and Growing Instructions for All Regions

To take your own cuttings, watch your mother plants for good stolon growth, generally once nighttime temperatures reach 60° or more. Water your mother plants and give them a fertilizer such as Miracle Gro™ to encourage lush healthy growth. Take cuttings 4 to 6 inches long and dip the cut ends of the dry cuttings in Rootone® or other rooting hormone. Place cuttings into your favorite medium. You can use a 50/50 mix of peat moss and perlite, 100% damp sand or damp vermiculite. Make sure it is moist, but not overly wet as that will encourage the stem to rot. Do not allow leaves to touch or overlap as the cuttings need good air space to prevent damping off. Some growers prefer to leave the leaves on and some prefer to remove all but the growing tip. Mums root easily in 10 days to 4 weeks, depending on how closely the temperature is kept to 65-70° F.

Do not place cuttings in direct sun. Be sure to put name tags on each cutting. Once cuttings have healthy roots, transfer them either directly to their final growing spot or into individual 4-inch pots to continue growing. They may be transferred from their 4-inch pots after 3 weeks or so into their final growing location. Chrysanthemums like a well drained soil and a pH of 6.0 – 6.5.

Mums prefer full sun but will do well with a minimum of five or six hours of direct sun each day. In selecting a site for a bed or pots make sure that it is away from windows, street lights or other sources of light as night light will keep them from blooming. The plants will not produce flower buds until the days get short enough so that there are only 14 ½ hours or less of daylight.

Mums are heavy feeders so use plenty of your favorite fertilizer. NCS recommends the use of a high phosphate fertilizer early in the season to encourage strong root growth, switching to one



Top: Chrysanthemum cuttings being rooted in vermiculite under continuous lighting at 72° F.

Above: Rooted chrysanthemum cutting of the cultivar *Dragon* produced in three weeks under the conditions described in the photo above.

with high nitrogen during the period where you should get a lot of vegetative growth but cutting back down to a 20-20-20 formula during the bud set period. The extra addition of sulfate of potash during the last stages of bloom development will help strengthen the stems.

Central Ohio

We encourage Central Ohio Society members to order early in January and February to get the cultivars that are wanted. In your order, include your club's special show disbud and garden mum for the yearly club show competi-

tion.

MARCH & APRIL

Wash your used pots, then rinse with a weak solution of bleach. Purchase potting soil without water retention beads. Use perlite, peat moss or fine pine bark and any other desired additives, such as Osmocote® or gypsum.

MAY

Pot up mums very soon after they arrive in May - make sure the rooted cuttings stay moist and turgid while they

are waiting to be potted. Place in moistened potting soil mix, water well, provide for good drainage. Place in smaller pots for easier care until growing well, then transfer to larger pots.

Georgia

BED LOCATION: Use a well-drained area, free from competing roots with at least 6 hours of sun; the more sun, the better.

BED PREPARATION: The bed should be prepared about 3 weeks before planting. A fertilizer such as 10-10-10 at the rate of 3 pounds per 100 square feet and superphosphate (0- 20-0) at the rate of 3 pounds per 100 square feet should be broadcast over the bed. Ground limestone (dolomitic, if possible) may be added to maintain a pH of 6.0 to 7.0. Incorporation of about a 2 inch layer of compost, well-rotted manure, or leaf mold is beneficial. The bed should now be turned over to a depth of ten inches.

PLANTING: When placing the cuttings in the bed, do not plant them any deeper than they were in the rooting media. Give them some shade for a few days to prevent wilting. After 2 weeks, pinch out the top; this will start your plant to branch. When each new shoot is 5 to 6 inches long, pinch again. Continue pinching until July 15.

FEEDING: Dry fertilizer, 10-10-10, is excellent, as is Miracle Gro™ for tomatoes, mixed half strength with 3 tablespoonfuls of fish emulsion per gallon added. Feed every 2 weeks starting about July 1; stop feeding when you see color in

the buds.

WATERING: Mums like water but not wet feet. Give them about 1 inch of water per week.

MULCHING: Mums like cool roots so it is good to mulch your plants.

San Francisco Bay Area

The Bay Area has many microclimates and covers a very diverse region, from the very cool city of San Francisco to the hot inland valleys of the East Bay and Salinas. Temperatures can be at times a 30° spread within 50 miles. Growers who live in the far East Bay and hot inland valleys should follow the growing instructions for Sacramento. Modifications will need to be made the closer you are to the bay and ocean locations due to the cooler growing climate. Please contact BayArea@mums.org for suggested growing advice for your particular location.

The months of December, January and February are time to review cultivars you wish to order or get from fellow growers. Keep your mums watered but not wet, watch for long rainy periods, tip pots on their side to keep from getting over watered. Pinch back early stolon growth; this generates more cuttings.

MID-JANUARY

Start to feed with a 10-10-10 or similar fertilizer either organic or chemical based. This stimulates new growth. Control for snails, slugs and black aphids; better to prevent than try to control a pest outbreak.

JANUARY - FEBRUARY

Start preparing your soils by adding organic materials. Addition of gypsum or Dolomite at a rate of about 5 pounds per 100 sq. feet is beneficial. Keep growing areas free of weeds. Make a soft pinch in mid-February to early March for cuttings in April. The English AA sized blooms do well in the cooler areas of Bay Area, but need an early rooting.

FEBRUARY - MARCH

Cascades and bonsai cuttings should be started. Heating mats or soil cables are recommended when rooting early cuttings.

MARCH

Continue feeding and pest control. As weather starts to warm you will see stolon growth start to form below the soil line. Nip or pinch out the top of the stolon growth to help stimulate more

cuttings. Never rip or tear out the stolon growth. We prefer stolon cuttings over stem cuttings but if stem cuttings are all you have, you should use them. If you did not start your cascades, bonsai and specimen plants earlier, consider doing so now. Stolon growths can also be used. If you grow the large English AA you will want to start taking your cuttings by mid-February to early-April We recommend a rooting mixture of about two parts perlite, one part peat moss, or straight river sand -- NEVER USE BEACH SAND. We recommend gentle bottom heat with either a soil heat cable or heat mat. (See general directions on rooting cuttings.) The Facebook Pages of the Bay Area Chrysanthemum Society have detailed pictures on taking cuttings. Look under photos and albums for pictures. Consider taking extra cuttings for your chapter's plant sale, giving to neighbors and new members who sign up at your plant sale.

The Bay Area is very environmentally minded. We recommend you control insects with what you feel most friendly to the environment.

MARCH - MAY

Keep your eye out for slugs, snails, earwigs, and aphids. Take cuttings for your growing needs and your club's plant sale. Cuttings should be new soft growth, not hard and woody. Rooting hormones are recommended; be careful not to use too much. Keep your cuttings out of the sun and wind, and keep misted and moist. Avoid overwatering. Continue to feed your old mother plants with a fertilizer of choice. After successfully rooting your cuttings, either toss your old mother plants or give them to neighbors. Prepare your soil in early April. Suggested you add dolomite lime, at about 3 to 4 pounds per 100 square feet. Gypsum is also recommended. Use a good fertilizer like a 10-10-10 or 16-16-16, lightly scratched and watered into the top three or four inches of soil 7 to 10 days before planting out in Mid-May to Mid-June. The addition of animal manure is helpful. You get great blooms and shorter plants with a planting date as late as July 15. If you plan on stopping your plants twice, suggested for all Decorative, Pompons, Single/Semi double, Anemone and Spoons, we suggest stopping dates of May 30 and July

1st. We recommend not stopping of plants after July 15.

Sacramento

POTTING MIX RECIPE - Chrysanthemums do best in a balanced mix that drains well. We prefer a mixture of the following: 2 parts Supersoil®, 3 parts compost, 1 part steer manure, 1 part peat moss, ½ part fine sand, and 1 part perlite. Mix well and moisten thoroughly before potting the mums. Do not add time-release fertilizer as this can burn new plants.

FEBRUARY

Make sure that your pots are in an area where they can drain properly and not be flooded. The new growth should be sprayed with an insecticide to control aphids and other insects, or you may use a systemic insecticide. Be sure to spread snail and earwig bait around the plants. As the weather warms up and new growth begins, fertilize the plants with liquid fertilizer.

MARCH & APRIL

Keep after those slugs and earwigs! They can be devastating.

MAY

Move the plants to 4" pots for 2 to 3 weeks to develop their roots more before putting them into the ground. Feed with fish emulsion. Plant 12-18" apart (depending upon the type of plant). Remember, if they are planted too close together they will reach for the light resulting in a tall, spindly plant. Proper drainage is important if the plants are in the ground. If you have hard clay soil, chrysanthemums will do best in pots. Move plants to one-gallon pots to develop their roots further, and finally into a larger two gallon pot.

New Jersey

MARCH

If you ordered plants from a catalog and they arrive early, you have a good chance to make additional cuttings as they grow. As the cuttings grow, start another cutting before your time pinch. Use Promix® HP to root the cuttings. Dip the end of the cutting into Rootone® Hormone Powder to promote good growth. Keep soil moist. When the club cuttings arrive in May plant in ProMix® HP. Water them with ½ strength fertilizer and keep in well lit location for a

few days with good air circulation. Use insecticide when needed. Read the label for instructions before use.

MAY

Begin cleaning your pots to get ready for the upcoming growing season. Use 1 cup of bleach to 5 gallons of water. Soak pots for a while and brush off excess dirt from last year. After soaking pots, rinse the pots thoroughly with clean water. When ready to plant cuttings, fill pots with Promix® and water the Promix® before planting cuttings. Be sure to put name tags on each cutting. If you are going to be transferring the cuttings to the ground, get soil ready by mixing compost and lime well into the soil before planting the cuttings. The location you choose to grow the mums should have a minimum of 6 hours sun per day. Begin feeding and insect spray after plants are established.

Northern Virginia and Washington, D.C. Area

MARCH

If the grower has mum plants surviving from the previous year and plans to produce rooted cuttings, small applications of fertilizer should be applied to each plant during March and April to encourage vigorous shoot development. Close attention should be given to controlling any insect, slug, or disease problems. Also during either March or April, chrysanthemum beds should be prepared a month ahead of planting when the soil is dry enough to work. The growing area should receive a 1-2" layer of well rotted manure, compost, leaf mold, or other humus, and 5 pounds of dolomitic limestone, and 4 pounds of a complete fertilizer such as 5-10-5 or 10-10-10 for each 100 square feet of ground. The added materials should be well mixed with the soil. Clumps should be fed at monthly intervals during February, March, and April to provide vigorous shoots from which to obtain propagating material.

EARLY APRIL

Chrysanthemum clumps should be divided each year. Dig and remove dirt from the old clump. Select the more vigorous shoots from the outside of the clump for transplanting. Cut each shoot from clump with 1 or 2 inches of root and plant in their permanent place.

Most chrysanthemum club members prefer rooted cuttings. They are more disease-free, grow more vigorously, and can be timed to be ready at a specified date. Mums root easily in 10 days to 4 weeks, depending on how closely the temperature is kept to 65° F, anytime from April to mid-July. Most people in the Washington, D.C. area start them in late April to early June. The later dates will generally produce shorter plants.

LATE APRIL

Generally shoots from plants growing outside will not be adequate for cuttings until mid- to late April. To take cuttings, see general instructions at the beginning of this article.

MAY 1 - 15

After 3-4 weeks, rooted plants can be placed either in containers of choice or in the garden. It is sometimes helpful to cover recently planted plants with a light fabric for a few days. When the plants are no longer wilting, pinch out the top inch or two. This will stimulate branching. Garden hardy chrysanthemums should be set 15 to 18 inches apart. The large flowering disbud types should be about 8 to 12 inches apart. They are all shallow rooted plants and should not have roots planted deeper than 1 to 1 ½ inches below the surface. They will be given an early start by watering each plant with a pint of solution made by adding a cupful of 5-10-5 or similar fertilizer to 10 quarts of water.

MAY 15 - 30

Plants should be mulched when first set out to conserve moisture, eliminate need for cultivation, keep the soil cool and open, and to reduce soil-borne disease. A 1- to 2-inch layer of pine needles, buckwheat hulls, ground corncobs, or your favorite mulch may be used. Always be watchful for insect, slug, and disease problems. Generally the pesticides used on other flower crops can be used on mums. Always check the pesticide labels or the Materials Safety Data Sheets for information.

Central Carolina Area

MARCH

A stool is the root system and the remains of the main stem from the plants that were grown the previous year. If the plants were grown in beds those will have been lifted up at the end of the flow-

ering season and boxed (not a closed box) to keep them in light airy conditions over the winter. Some growers wash the soil from the stool, trim the root system and use fresh compost in the boxing process. Usually from January on new growth will emerge from the old stools. These growths are the cuttings for the new growing year. Cuttings may appear from the base or from the stem of the stool. New growths from your mother plants should be more significant in March and you should be careful not to be caught by a hard freeze or frost, which can damage new growth. Start getting prepared for the propagation season. Decide what types of containers are to be used and materials needed. Propagation materials do not require fertilizer and can consist of fine peat, sand, and/or perlite. Some growers choose to mix all three together or use only one. Other growers use soilless composts. You will need seed trays, cells and materials which are available at garden centers. Water materials well the day before starting to take new cuttings. Continue spraying for pests and fungi.

APRIL

This is the main month to be taking cuttings. See general instructions at the beginning of this article.

MAY

Here are some suggestions for caring for newly rooted plants that are arriving from vendors:

1. Be sure to have potting mix, pots and labels ready before your scheduled delivery of mum plants. Getting these tender young plants off to a good start helps to provide them the opportunity to grow to their optimum beauty.
2. Moisten the potting mix you will be using to pot up the new plants the day before you intend to pot them up. It can take 24 hours for the peat moss in potting mixes to get thoroughly hydrated.
3. Handle your young plants by their leaves when possible (and not their stems). Immediately upon arrival, open the box, upright your plants and carefully inspect the plants for any damage (broken stems, pests or disease). Contact the vendor immediately with any concerns. After potting up, it is wise to quarantine new plants for 2 weeks if they have not come from a commercial grower.

4. Be sure to keep the correct label with your young plant as you pot it up.
5. After inspecting your new plants, pot them into 3" pots with the already dampened (not dripping water) potting mix. Cuttings taken last month should be well-rooted by now and ready to pot up into 3 inch pots.
6. Water all newly potted up plants with a root stimulating fertilizer that is diluted to ¼ strength. Look for a water soluble fertilizer with a higher middle number (N-P-K). P (phosphorus) helps to stimulate root growth. Mums grow better with drier potting mix because it causes the roots to stretch to reach the moisture. Overwatering is the main cause of new plants dying off from root rot.
7. Harden off these newly potted up plants for 4 days by placing them in a location sheltered from the wind where they will only receive morning sun for 2-3 hours.
8. Pot up mums to a 6" pot when their roots entirely fill the 3" pots.

Southwest

(Phoenix, Las Vegas)

MARCH

Control excessive growth of mature mum plants by pinching or cutting off tips of stems. New plants can be started by rooting the stem tips. Pot newly-rooted cuttings started in February. A 4-inch pot per mum plant is sufficient to sustain the new mum until planting in April or May. 4-inch pots require frequent watering (every other day as temperatures rise) and partial shading. Since most soils in the Southwest are heavy clay, alkaline, and easily compact, it is necessary to add plenty of organic matter. Peat moss, forest mulch, compost or well-rotted manure are all good additions.

If planting in pots or in raised beds the following soil mix will work well: Using a 5-gallon pail for measuring: 2 pails forest mulch, 1 pail soil, ¼ pail sand, 1 pail cow manure, 1 lb gypsum, ½ lb superphosphate, 1 pail peat moss, ¼ pail Vermiculite, ¼ pail Perlite, ¼ pail Omni soil conditioner, 1 lb iron sulfate.

APRIL

Prepare soil in mum beds for new plants. Suggested additions at time of bed preparation per 100 sq. ft. area: humus 8 cu ft, ammonium phosphate 3 lbs, iron sulfate 2.5 lbs, gypsum 10 lbs.

MAY

Planting time should be before the second week in May as that generally gives the plants a good send-off before the blistering hot weather arrives. In the Southwest, we say they should be in their final resting place by Cinco de Mayo. A good mulch covering the soil by a couple of inches will help keep down weeds, conserve on water and help keep the roots cool. Fertilize your mums every two weeks in the ground or every 10 days in pots. A balanced fertilizer such as 20-20-20 or 10-10-10 can be used. Spray with a general purpose insecticide if insects are encountered. Water more frequently (every other day in containers and every two to three days in beds) as temperatures rise.

Pacific Northwest

During this time of year in the Pacific Northwest, frost, ice and rain protection strategies should be in place. The stools will probably survive one single or two consecutive frosty days. A third frost might kill many of the stools. Protecting stools from rain (keeping the plants dry) promotes necessary semi-dormancy. When stools are wet there is a much higher risk of frost kill. Additionally, a hard frost will often break clay pots because the wet media expands when it freezes. The stools should be kept in a semi-dormant condition until 20-30 days before you wish to take cuttings. To wake them up and promote shoot growth, feed them moderately with a high nitrogen fertilizer such as a mid-season fertilizer (20-10-20) or Miracle Gro™.

Local chrysanthemum club members currently follow either of two media/methods for starting cuttings:

The first method employs a standard greenhouse cutting/propagating bed where cuttings are placed in rows in the starting media, separated as chosen by the grower. The basic propagating bed material is peat moss and sand or our standard Mums & Roses growing mix (contact the Evergreen Chrysanthemum Association <https://www.clover.com/online-ordering/evergreen-chrysanthemum-burien> for details). Some growers start cuttings directly in 2½-inch cross bottom propagating

cubes. Some use a starting medium consisting of 60% ProEarth #2 Professional Mix™ and 40% Green Mountain Sharp White Sand™. The sharp white sand helps produce more roots as the sharp edges on the particles penetrate to the cambium layer of the cutting and new roots develop where the layer was broken.

The alternative rooting method uses Earth Pots™ as is done by some large-scale commercial propagators. The Earth Pots™ come in trays of 72 starting modules containing the required soilless ingredients. The cuttings are inserted directly into each module. A propagating bed is not required per se but you still need to provide controlled heat under the tray, overhead protection (covers), overhead lighting and frequent overhead misting. Earth Pots™ can be purchased in large quantities from several suppliers but be sure to order them early since they often sell out.

Both methods produce excellent rooted cuttings. The Earth Pots™ are preferred by some growers because they allow a dense starting flat (72 starts per flat). Downsides include additional costs and the need for frequent misting.

The cutting bed has an advantage with the white sand enabling more roots per cutting and the ability to get a good look at the roots when cuttings are taken from the bed. The starting media or the under flat temperature must be controlled (65-69° F) by heating elements such as heat pads, heat coils, general heating of the room, etc.

There are varying opinions about when to start taking cuttings. Different mum cultivars require different starting dates to provide the best chances of getting full flowered blooms. Many commercial propagators note such information in their catalogues or plant lists. For most of the year we concentrate primarily on root development. With that in mind, it is generally recommended that plants get into their final pots, (8" or 9" pots, or larger) by the first to the fifteenth of June and that the last pinching be done between July 4 and July 15. This allows sufficient time for the plant to develop strong fully root-bound roots by the time the buds begin to appear.

A basic tenant for pot grown plants in the Pacific Northwest is that the plants

seldom bud out until they become root bound. If you are still potting-on into July there isn't sufficient time for roots to develop before buds appear. The result is often late and anemic blooms; pushing them along with additional fertilizer can't really save them. The need for sufficient root development is mostly independent of the planned stopping dates. You will have to decide when to take your cuttings in order to get the best flowers and this may take some experience.

Many growers in the Pacific Northwest have started taking cuttings early because weather conditions in April tend to stall the growth of the plants and we barely get them into the final pots by early June. Some growers who have overshot the desired potting-on dates have resorted to using 8" pots for the final potting in order to get the root system more quickly semi-root bound. Such a strategy works to some extent, but keep in mind that attaining exceptional flowers may be difficult since the smaller pot with a plant with fewer roots significantly limits the potential of the final blooms. Most garden varieties are not affected by the need for roots to become semi-root bound; exhibition class mums are more likely to be. It is better to delay starts to get healthier cuttings than to take them earlier (in January), and have weak cuttings. Another observation is that the shoots tend to be growing faster when cuttings are taken in February and into March and April than earlier in the year.