

# Belgian Mums® Culture



## WHY GROW BELGIAN MUMS?

Simply put, breeding. Belgian Mums® are the finest breed “garden” type mum on the market today. There is over 30 years of breeding and testing behind the Belgian Mums® name. They grow well in any container size from a market pack to ½ bushel. Belgian Mums® have a great mounding habit and will be covered with an uncountable number of flowers because they branch better and more often than other mums. This is also the reason Belgian Mums® are so flexible and can be sleeved or put pot to pot on shipping carts without worry of breakage or loss.

FEATURE	BENEFIT
1. Superior Breeding	The best varieties on the market
2. First “no pinch” Mum	Save labor and easy to grow
3. Flexibility	Easy to ship without breakage
4. More Flowers	Better show and sales at retail
5. Ball Shaped	Consumers and growers first choice

## WHAT TO DO WHEN CUTTINGS ARRIVE?

Belgian Mums® can be ordered as rooted or unrooted cuttings. All boxes should be opened and inspected immediately. Place open boxes in a cooler at about 40° F. Plant rooted cuttings in your finished container or stick unrooted cuttings in a cell tray as soon as possible. Do not store mum cuttings in a cooler longer than 2 to 3 days.

## HOW TO CARE FOR YOUR URC'S

When your cuttings arrive you will notice a white powder on the bottom of each unrooted cutting. This is a rooting hormone and it is applied at time of harvest for best rooting results. No other rooting hormone application is necessary.

‘Mum Lighting’ is recommended, regardless of time of year, during the entire rooting period. Mum lighting is defined as 10-20 foot candles of incandescent light at plant level for at least 4 hours at night to keep plants vegetative. Soil temperature needs to be kept between 70° - 72° F during the rooting process.

You can root your cuttings directly in the final pot or stick them in 50 to 105 cell trays for rooting. It is very important to stick cuttings into moist soil and mist them regularly. Starting day 1 to 4, mist for 10 sec every 8 minutes. Days 5 to 9 mist 10 sec every 15-20 minutes. Days 10 to 15 mist 10 sec every 30-60 minutes. Reduce amount of mist gradually in the second week until plants are fully rooted. Excessive misting and low light after root initiation will result in decreased quality and stretching. You may need to syringe rooted cuttings 2-3 times per day under sunny conditions and low humidity to prevent premature budding.

We recommend that you use this as a guideline only and adjust your mist schedule based on light and temperature conditions in your greenhouse.

Fertilize twice during rooting with a solution of 20-10-20 fertilizer at a rate of 200-250 ppm. A broad spectrum fungicide drench can be applied with the first feed but is not necessary when you start with healthy cuttings.

## AFTER ROOTED CUTTINGS ARRIVE OR URC ARE ROOTED

Before you are ready to start planting have your finished pots completely filled with media. Partially filled pots are unacceptable. Make sure media is evenly moist throughout the entire pot, not just the top few inches.

Plant the rooted cuttings slightly deeper than soil level, leaving 1-2" of plant above the soil. Immediately after planting feed with 300 ppm of 20-20-20 or similar fertilizer rich in phosphor and ammonium-based nitrogen. This will promote roots development and help to build a strong plant base. Remember a strong, healthy root system is a key to growing a superior finished plant.

Do not let your mums completely dry out during the first few weeks. You may have to syringe your crop for the first few days to prevent wilting.

### **MEDIA**

Most of the soilless media available on the market are suitable for Belgian Mums® production. Do not use a media with any type of water retaining gel, this will only create root disease.

For outside grown crops with overhead irrigation you may consider incorporating controlled release fertilizer in the media to ensure steady supply of nutrients.

Weekly soil tests are recommended to maintain correct fertilization program. Try to maintain a soil pH of 5.8-6.2.

### **SPACING**

Spacing will vary from grower to grower depending on finished pot size and your target sales market. We recommend for the best results that the foliage never touch each other. A good indicator for the distance between plants is to base the calculations on the expected diameter of the plant plus 2". Below are our recommended spacing examples:

<b>POT SIZE</b>	<b>PLANTS/POT</b>	<b>PLANT DIAMETER</b>	<b>SPACING</b>
6"	1	10-12"	12-14"
8"	1 to 3	14-18"	16-20"
10"	1 to 3	15-20"	17-22"

\*Proper spacing will prevent tall 'stovepipe' growth, yellow foliage, disease and un-saleable plants.

### **LIGHT AND PHOTOPERIOD REQUIREMENTS**

Belgian Mums grown in full sun will have the best quality. Long days are necessary for vegetative growth and short days are needed for bud initiation and flowering of garden mums. Both spring and summer lit/shaded crops will require night interruption during the initial growth stage and blackout treatment before scheduled flower date. Natural day crops will bloom from early September through October.

### **IRRIGATION**

Drip tubes or drip tape is recommended above hand watering or overhead irrigation. Drip system helps to keep foliage dry and prevents the spread of bacterial leaf spot.

During the first few weeks of growth, keep the plants evenly moist but not soaked. Later in the season if plants look slightly wilted in late afternoon there is no immediate need to water them, they can easily get through the night. Water them thoroughly next day in the early morning.

Avoid fluctuations between too wet or too dry. Try to water the plants on a regular basis in order to prevent excessive drying. On the other hand over watering will only cause root disease and a poor finished plant.

A Belgian Mum® will do most of its growing between sunrise and 11am. This is why it is important to irrigate in the early morning to get the maximum growth.

If plants are dry in the morning make sure to irrigate thoroughly and evenly. This means that some of the water or feed should drain from the bottom of each pot. This is also to help prevent any salt build up.

## **FERTILIZATION**

Belgian Mums® will require a considerable amount of well balanced fertilizer with micronutrients to finish properly. There are two stages of mum development.

The first is the vegetative period and accounts for the first 60% of the plant size as well as 60% of the crop time. Shortly after transplanting when irrigation frequency is lower we recommend using higher rates; 300-400ppm of 20-10-20 or similar type of fertilizer with each watering. Fertilizer rates should be reduced when plants develop and irrigation frequency increases.

The next period is the generative growth or 'flower development' period. This accounts for the final 40% of your plant growth and schedule. At this point a grower should switch to potassium rich fertilizers: 15-5-30 or potassium nitrate at 250ppm until flower buds are well developed. Once you see first color use clear water. If vegetative growth is too slow, plants seem small or foliage is turning yellow it is beneficial to occasionally apply 20-10-20 at 300ppm during this period as well. Magnesium sulphate applied as a spray before first color will make plants stronger, enhance color and extend shelf life of Belgian Mums®.

Some growers are being successful in producing garden mums by using constant feed containing 80-100ppm nitrogen. This method requires very dependable injection system that will deliver lower rates of well balanced fertilizer with each watering. Growers should supplement minor elements when using professional fertilizer mixes at low rates or plants could develop minor nutrient deficiencies. A constant supply of Iron around 1ppm is especially important in maintaining healthy plants.

For garden mums grown with controlled-release fertilizers choose one of the newer types on the market that is less likely to release solely on soil temperature. Use a 3-4 month release type and incorporate 6-12 pounds per cubic yard of soil prior to filling your pots or after transplanting as a top dress. Slow release fertilizer at half rate could be used in combination with liquid feed. Use weekly soil test results to monitor pH and EC of your crop and adjust feed program accordingly.

## **PINCHING**

All Belgian Mums® can be treated as no-pinch varieties if grown in a 6" or larger container. Smaller pots do not have sufficient time to develop and branch without a pinch. If a grower is more comfortable with doing a pinch this is fine and can be done when planting the rooted cutting to save time and labor. When pinching, always do a "soft pinch" removing only ½" or less from the cutting tip. Pinching hard or pinching after July 15 may delay flowering.

## **GROWTH REGULATORS**

In most cases, if proper varieties are being used along with the correct schedule, no growth regulators are needed. Smaller finished products, such as market packs or 4", may benefit from the use of growth regulators. B-9 sprayed at 2500 to 5000 ppm will slow the growth and a Bonzi drench at 2-3 ppm will virtually stop all growth. The last PGR application should be no later than 4 weeks before first color. Excessive or late applications of growth regulators will delay flowering.

Florel will not increase branching in Belgian Mums® but is recommended as a foliar spray during rooting to prevent premature budding.

## PLANNING

Before ordering your cuttings or even selecting varieties you need to ask yourself the following questions:

1. What is my desired flowering date?
2. What is my desired pot size or finished plant size?
3. Will I order rooted or unrooted cuttings?
4. Is it for outside or inside grown crop?
5. Use blackcloth or natural day flowering?

We recommend that the diameter of your finished plant be 1.5 to 2 times the pot size. On average, starting with a rooted cutting, a Belgian Mum® will grow 1.5" per week. Knowing this, if you want your 6" Belgian Mum® to finish with a 12" spread you would need to plant 8 weeks prior to your desired finish date. If starting with an unrooted cutting, you would need to add 3 weeks for rooting.

EXAMPLE:

FLOWER DATE	POT/FINISH SIZE	WEEKS TO FINISH	PLANT DATE
9-17 EARLY	8" / 18"	12 WEEKS	RC JUNE 24
9-17 EARLY	8" / 18"	15 WEEKS	URC JUNE 3

\* You can always reduce the vegetative period by using 2 or more cuttings per pot and postpone planting until first week of July.

- Feel free to contact your sales representative for assistance or e-mail [Bernard@grolink.com](mailto:Bernard@grolink.com) with scheduling questions.

## PREMATURE BUDDING

Premature budding occurs when plants initiate flower buds before they reach reproductive stage due to stressful environmental and growing conditions. This will result in plants finishing short and flowering too early.

The following steps should prevent premature budding even if you notice small buds on your starting material:

- Light cuttings during rooting – 4 hours of night interruption with at least 10 foot candles of light.
- Avoid planting/moving natural day crops outside before mid June.
- Maintain above 68F in propagation
  
- Never allow plants to dry during the vegetative stage.
- Feed with phosphor-rich fertilizer at 300-400 ppm right after transplanting to promote vegetative growth.
- If unable to maintain proper temperature and lighting, spray 500ppm Florel 10 days after stick in propagation and again one week after transplanting to keep plants from premature budding. Don't apply later than July 1st for natural day crops to avoid flowering delays.

## INSECT AND DISEASE

GroLink offers disease-free, greenhouse grown cuttings that should perform better than any other mums on the market. Thorough monitoring of your crop, implementing IPM program and prevention are the best

defense options against insect and disease problems. Since there is no good chemical control for Bacterial leaf spot and Fusarium it is very important to use drip irrigation, sterilize production areas, remove weeds and use healthy plant material.

The most common insects and diseases of garden mums with recommended treatments are listed below.

- \* Always use labeled rate only
- \* Make sure these products are available for use and labeled for mums in your state
- \* Always try first any new chemical on a sample number of plants before treating your entire crop

<u>INSECT OR DISEASE</u>	<u>RECOMMENDED TREATMENT</u>
Aphids	Marathon
Mites	Avid
Caterpillars	Dipel, Conserve
Leafminer	Citation, Avid, Safari
Thrip	Mesurool, Conserve, Avid
Bacterial Leaf Spot	Camelot, Kocide
Pythium	Banrot, Subdue MAXX
Fusarium	Madallion, Heritage
Rhizoctonia	Banrot, Heritage

***\*All information contained here is general and based only on our experience with our varieties. This is meant only as a guide and GroLink will accept no responsibility from following the advice within.***