

STEPS TO PRODUCING

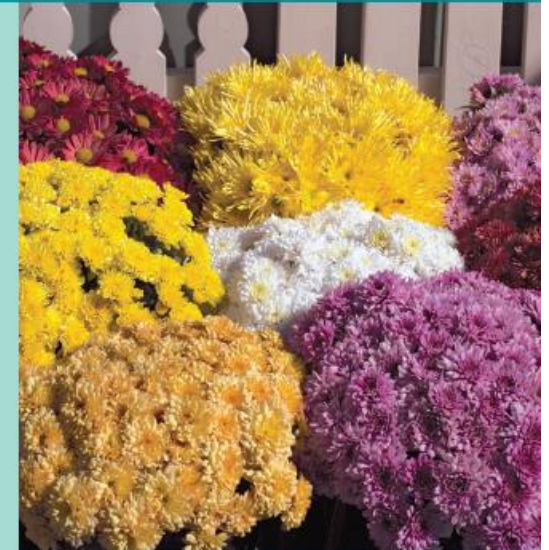
QUALITY GardenMums

PROGRAMMING RECOMMENDATIONS

- Chrysanthemums are short-day plants and initiate flower buds in response to an interaction of day length, temperature and plant age. The time to plant depends on projected sales date, size of the container, number of cuttings per container, variety and local climatic conditions.
- A minimum of 12 hours darkness defines short days and is required for flowering. For months with less than 12 hours darkness, short days need to be provided manually.
- Black cloth or 4 to 6ml black plastic can be used to provide an impermeable light barrier over the crop. The material is pulled over the crop to provide 12 to 15 hours of darkness daily. To reduce heat build-up, which can delay flowering, a 7 p.m. to 7 a.m. schedule is helpful. Panda plastic is a preferred material with the white side up to reflect the light, reducing heat. Some growers use supports and nylon wire slightly above the crop or simply lay the plastic right on the plants and hold it down along the edges with pipes, soil, or stones. This may not be that easy to manage during heavy rains or wind. A better structure can be made from 3m electrical conduit or PVC pipe at 2.4 to 3m spacing. These are bent and stuck into pipe driven into the ground. The material is then pulled over the frame at the end of the day.
- It is best to black cloth the crop until the buds are well formed and show colour.
- The rooted plugs supplied by Ball Australia have been pinched and are ready to start short days.
- Our variety offerings are all 7-week response times so planting should be scheduled approximately 7 weeks prior to desired finish time.
- It is important to plant your plugs as quickly as possible. Holding plugs will stunt their growth and significantly reduce final product quality.

IRRIGATION & FERTILISATION

- GardenMums may be grown using overhead irrigation, sub-irrigation and drip methods. A drip irrigation system is often the best choice as it keeps the foliage dry to prevent spotting of the leaves and also reduces the chance of developing foliar disease problems.
- When irrigating, apply enough water to thoroughly wet the soil mass. At each irrigation there should be adequate water applied to drip from the container. Never allow the plant to wilt during the early stages of production.
- It is very important to fertilize immediately after planting. Watering in with a fertilizer solution is recommended. A constant liquid feed program using a 20-10-20 type of fertilizer at a rate of 250 to 350ppm will usually work well. In some growing situations, other formulations may be better. A program of regular soil testing is the best guide to determine the optimum fertilization program.
- Slow-release fertilizers such as Osmocote, in combination with liquid feeds, may also be used.
- Once you see colour in the crop, stop feeding and finish the crop with fresh water, which will improve the post-harvest shelf life.



PLANTING

- This is the most critical period in the production of a quality Garden Mum crop. Most growers plant the rooted cuttings directly into the final container whenever the space is available. Be prepared—have all the containers filled and the media slightly moist.
- A lighter, well-drained media makes deeper planting less risky. In a heavier media, root loss will delay take-off, reducing the quality of the finished crop.
- It may be necessary to mist or syringe the newly planted cuttings for the first few days after planting to prevent wilting.
- Water the cuttings in with fertilizer such as 20-10-20 at 250 to 300ppm.
- If outdoor temperatures are cool (nights from 10 to 15°C), it is recommended that the plants be started in a greenhouse where the night temperatures can be maintained from 15 to 20°C, with 18°C being ideal. Better take-off and initial growth will be seen.



PINCHING

- As the plugs are pinched, no further pinching is needed.

TEMPERATURE

- Many times in late spring to early summer, cool nights may trigger premature bud formation. One cool night at 10°C will not do this, but several days or more of cool temperatures can promote crown bud formation. This is not desirable and may cause the plants to finish too small.
- If you are in an area that has cooler night temperatures the best solution is to start the crop in the greenhouse in the spring. However, a little crown bud formation followed by warm night temperatures will be no problem, as the plants will go back to being vegetative and grow around the crown buds.
- If crown bud formation occurs, applications of Florel and pinching will help to promote vegetative growth. Most importantly, be sure fertility levels are high.

PESTS & DISEASES

- An IPM (Integrated Pest Management) program is the best defence against the various insects and related pests that attack a GardenMums crop. Constant monitoring of the crop will enable the grower to detect pests before they become a problem and take appropriate action to control them. Culture-indexing programs being done by the propagator have overcome many diseases of GardenMums, but there are still a number of root, stem, foliar and flower diseases, which the grower might face.
- The best control is to start with clean cuttings and growing media. Proper control of the environment, heat, moisture, ventilation, etc. will then be the best defence.
- There are many effective chemical and natural controls for the numerous insects and diseases that attack GardenMums. Before using any pesticides, check with local agencies in your state to ensure they are registered for specific use. Always follow the labelled rates and application methods.



PLANTS PER POT AND SPACING

- A key to excellent quality, spacing depends on the pot size and the desired finished product.
- Spacing plants too closely promotes weak, stretched and poor-quality plants. Disease problems are also more likely to occur.
- Many sizes of plastic, fibre and wood containers are suitable for growing GardenMums.
- The number of plants per pot varies depending on the pot size.
- The chart below shows recommended plants per pot and pot spacing.

Container Size	Plants per pot (ppp)	Final Spacing
125 mm pot	1	15 x 15 cm
140 mm pot	1	25 x 25 cm
200 mm pot	2	40 x 40 cm
25cm hanging basket	3	50 x 50 cm
30cm hanging basket	4	65 to 70 cm

MEDIA

- Choose a well-drained mix, but avoid mixes that are too light and may dry out too rapidly.
- The starting pH in a soil-based mix should be 6.0 to 6.5, and in a soilless mix slightly lower at 5.8 to 6.4.

HEIGHT CONTROL AND GROWTH REGULATORS

NOTE: With all growth regulators we recommend an initial small-scale trial

- Alar has been used for decades for height control, and is the preferred chemical to improve the quality of a GardenMums crop.
- Alar applications not only control height but also produce darker, greener leaves and stronger stems.
- An application at 5,000ppm 2 to 3 weeks after planting may be necessary to control the more vigorous varieties, especially for greenhouse-forced Summer-flowering crops.
- Alar may not be necessary for most GardenMums grown outside.
- Bonzi is also a very effective chemical, but takes more skill to apply correctly. A 1 or 2ppm drench when the plants are at the desired finished height will stop the growth. Growers must be extremely careful when using Bonzi.

HEAT DELAY

- High day and night temperatures may cause heat delay. As temperatures increase, there is a point when chrysanthemum flower initiation and development begin to slow down. Some varieties are more sensitive than others. All efforts should be made to minimize extremely high day and night temperatures.
- Suggestions to avoid heat delay for shaded crops:
 - Start cooling very early in the morning.
 - Cool at night with a pad and fan system that pulls air under the black cloth.
 - Close the black cloth late in the day at 8 p.m. to avoid heat buildup and leave the cloth closed until 8 a.m.
 - For enhanced cooling, a computerized black cloth system may be programmed to open after the sun has set and closed before the sun comes up in the morning.
 - Cover before sunrise versus evening.

LIGHT INTENSITY

- GardenMums should be grown in full sun.
- Newly planted cuttings may need light shade for a few days until they are fully established.



SUPPORT THE CAUSE ...

PROMOTE GARDENMUM 'Shabby Chic' with this national promotional program.

- ▶ A royalty of 20 cents per label is collected and the money is donated back to the National Breast Cancer Foundation.
- ▶ Purpose designed label available from Norwood - Code for ordering: 51-2535
- ▶ Contact Norwood: (03) 8796 9300
- ▶ GardenMum 'Shabby Chics' light mounding habit is literally covered with masses of dense blooms that makes the whole plant appear to be one big flower. The blooms last for weeks and the sheer number of flowers will offer high appeal at retail making GardenMum 'Shabby Chic' a garden must have!



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