

GUIDE TO SUCCESSFUL OUTDOOR GARDEN ASTER PRODUCTION

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Most garden asters are cultivated varieties of the fall-blooming wildflower, *Aster novi-belgii*, or Michaelmas daisy. They are native to the United States and can be seen blooming along roadsides during the fall. From the wild types, Danish breeders have selected for new colors and compact shape. As a floriculture crop, they can be grown for cut flowers, an indoor pot crop in four-inch or six-

inch pots, or an outdoor perennial in six-inch pots or larger. This article covers the commercial production requirements for perennial garden asters.

Schedule

Garden asters flower under short days similar to mums and they can be grown on a schedule similar to garden mums. Grown under natural days, they flower one to two weeks earlier than garden mums. The earliest cultivars are ready to sell in mid-to late-August. Later varieties flower throughout September. They can be grown anytime of the year by manipulating photoperiod. In general, asters are kept vegetative using long days (<14 to 16 hours of daylight) until size is achieved, then forced into flower with short days (Schwabe, 1985). Very short days will induce dormancy. Therefore if growers are going to use shade cloth to induce earlier flowering, daylengths <10 hours should be avoided to prevent dormancy and the resulting bud abortion. Flowering can be delayed with a combination of high temperatures, averaging >68 F, and high light. The flowering of an outdoor crops can be influenced by summer temperatures.

Asters can be planted at the same schedule, size of pot, and substrate as used for garden mums. They can also be planted up to 2 weeks later than a garden mum crop grown under similar conditions, because they produce an abundance of growth just prior to flowering. Rooted cuttings planted at the beginning of June may require a 1 1/2 gallon container; mid-June an eight-inch container; July a six-inch container for "fast-cropping." These later plants will require less pinching and perhaps more cuttings per pot. Eddy and Hammer (personal comm.) produced acceptable sized plants with one cutting per eight-inch pot when planted on June 9.

Keys to Success with Garden Asters

1. Plant cuttings upon arrival
2. Start the crop 2 weeks later than mums
3. Provide sufficient water
4. Manage your fertility program
5. Space plants for proper growth & good air circulation
6. Pinch plants and apply plant growth regulators to control plant height

Pinching

Pinch 7 to 14 days after potting rooted cuttings, removing all but 3 to 5 internodes. Pinch every 14 to 18 days until July 25, again leaving 3 to 5 internodes on each branch which has emerged since the previous pinch. Shears can be used. For a crop planted around June 9, three pinches are required.

Plant Growth Regulators

A plant growth regulator should be applied after the final pinch, when 1 1/2" to 2" of new growth has occurred. This will reduce final plant height, intensify the dark green color of the foliage, and most importantly create rounder, more uniform plants. Foliar sprays of either B-Nine (two applications at 5,000 ppm, applied one week apart) or Sumagic (a single application at 80 ppm) produced rounder, more uniform plants (Eddy and Hammer, personal comm.). Other recommendations include B-Nine at 1,500 to 2,000 ppm applied as needed (Luczai, 1992) or two applications of B-Nine at 2,500 ppm (McAvoy, 1993).

Fertilization and Irrigation

Maintain the substrate pH between 5.8 to 6.5 for a soilless substrate. Use a complete N-P-K fertilizer providing 200 ppm N and K₂O via irrigation water. A rate of 150 ppm N and K₂O may be sufficient for a soil-based substrate. Asters are less salt tolerant than mums. Excessive fertilization causes the plants to grow large and tilt in the pots. Growers need to manage their fertility program to avoid excessive salt build-up. Measure the substrate solution electrical conductivity (EC) routinely and utilize monthly leaching of salts, if EC is too high. Low fertilization results in small plants. Fertilization outdoors may need to be supplemented with a higher rate of a slow release fertilizer like Nitroform (38-0-0) if excessive leaching occurs due to heavy rains. Though asters are more drought tolerant than garden mums, drought stress can cause yellowing of the lower leaves. Fertilization should be terminated when the flowers begin to open to improve flowering longevity. Foliar analysis values for garden aster are provided in the table below.

TABLE 1.

Nutrient	Recommended concentration
Nitrogen(N) (%)	2.2 - 3.1
Phosphorus (P) (%)	0.24 - 0.65
Potassium (K) (%)	3.3 - 3.7
Calcium (Ca) (%)	0.98 - 1.7
Magnesium (Mg) (%)	0.18 - 0.35
Boron (B) (ppm)	37 - 46
Iron (Fe) (ppm)	162 - 180
Manganese (Mn) (ppm)	65 - 273
Zinc (Zn) (ppm)	26 - 12

Spacing

Use the same spacing as for garden mums. 18" centers for a six-inch to eight-inch pot. Values are reported on a dry-weight basis, based on a limited number of plants. The most recently matured leaves of field grown plants were sampled when flower buds were present, but prior to flowering. Samples taken from vigorously growing healthy plants and are only guidelines. Source: Armitage, 1993.

Insects

Asters have few insect pests. If needed, follow the same insecticide regime as for garden mums. Bees are attracted to aster flowers. Market the plants when one-quarter of the blossoms are open to prevent problems with attracting bees.

Diseases

Rust and powdery mildew are the two major foliar diseases of garden asters. Other possible foliar diseases are downy mildew, *Alternaria* spp. *Cercospora asterata*, and *Septoria* spp. Cultural practices to control foliar disease include avoiding wet foliage during irrigations and select a production site that provides adequate air circulation. Potential root/stem diseases include *Pythium*, *Phytophthora*, *Fusarium*, *Rhizoctonia*, and *Verticillium*.

Future Considerations

Garden asters are extremely hardy. Given this fact, future follow-up sales may be limited. In addition, once established in the yard, garden asters are aggressive growers and some cultivars like Blue Butterfly require up to 6 square feet of space.

Varieties

Make a majority of your order blue, red, and purple. The top selling varieties for Yoder are Patricia Ballard, Frida Ballard, Professor Kippenberg #2, Celeste, and Winston Churchill.

Table 2 contains additional growth information about the top five varieties.

Marketing

Garden asters provide another flowering crop to boost your fall sales. Along with garden mums, ornamental cabbage and kale, pansies, and other cool season annuals, garden asters can complete your product line. Though they can be grown on a schedule similar to garden mums, they are a new crop and should have their special features promoted.

Table 2. Descriptive information about the top five garden aster cultivars from Yoders.

Variety	Color	Vigor	Flower Size	Natural Response	Response Group (weeks)	Comments
Celeste	Lavender/Blue	Medium	Medium	Early	5 1/2	A striking dark blue petaled flower with complementary yellow disk.
Frida Ballard	Raspberry	Medium	Medium	Mid	5	Very close in performance to Winston Churchill, except slightly darker and color later.
Patricia Ballard	Pink	Medium	Large	Mid	5	Large lavender-pink flowers and moderate vigor. Avoid daylengths less than 10 hours for best bud set.
Professor Kippenberg #2	Lavender/Blue	Short	Large	Mid	NR	Dwarf variety with large, blue-purple flowers.
Winston Churchill	Raspberry	Medium	Large	Early	5	Top selling variety for Yoders.

New Product: There is always excitement over something new. Your competitors probably won't have them either.

New Colors: Blue has never been achieved in a garden mum, so this color is sure to draw attention, as will the bold red varieties.

Late Blooming: Color holds up into November on some varieties.

Unique Habit: Few varieties achieve the perfect globe shape, but customers may like their natural, "wildflower" appearance.

Perennial: You can guarantee it as a winter hardy plant.

Companion to Mums: The smaller, daintier aster flowers are an excellent complement to large mum blossoms. Blue varieties go well with yellow mums; pink varieties with lavender mums; purple with white mums.

Cut Flower: Stems can be used as a cut flower. Harvest the stems when at least 20% of the flowers have opened and pollen is visible.

Recommendations

Make room for 100 to 200 garden asters for the fall. Often there are minimum order requirements, so consider pooling your order with another grower. Pot them up two weeks after your mums and grow them on the same schedule. Purchase large, colorful care tags and a promotional kit if you retail. Plant some display beds containing garden asters and garden mums to promote asters and let consumers know what landscape design possibilities can be done with them.

For Further Reading

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