

# DARWIN PERENNIALS FINISHING GUIDE

PAGE	CROP	SERIES/ VARIETY	MEDIA PH	TEMPERATURE	DAYLENGTH	VERNALIZATION REQUIRED	LIGHT LEVELS IN FOOT CANDLES	WATERING	FERTILIZATION		PINCHING AFTER TRANSPLANT	PLANT GROWTH REGULATORS	PESTS AND FUNGAL DISEASES	CROP SCHEDULE & USES					
														1-QT.(10-CM) POT, 1 PLANT PER POT	1-GAL.(15-CM) POT, 1 PLANT PER POT	2 TO 3-GAL. (25 TO 30-CM) POT, 3 PLANTS PER POT	HEIGHT	USDA HARDINESS ZONES	BLOOM MONTHS
23	 <b>ACHILLEA</b> <i>Achillea hybrida</i>	Moon Dust	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 60 to 65°F (16 to 18°C)	Long day facultative	No	5,000 to 8,000	Allow media to dry regularly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Recommended	PGRs generally not needed	Pythium and rhizoctonia can result from overwatering.	Unrooted: 13-15 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	12-14 in. (30-36 cm)	5-8	June to July
22	 <b>ACHILLEA</b> <i>Achillea millefolium</i>	Milly Rock™ Series	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 65 to 75°F (18 to 24°C)	Long day facultative	No	2,500 to 4,500	Moderate	Use a balanced fertilizer at a rate of 150 to 175 ppm N.		Typically not required	Typically not required	Aphids on the buds	Rooted: 6 wks	Rooted: 6-8 wks	Not recommended	10-12 in. (25-30 cm)	5-9	April to September
20, 23	 <b>ACHILLEA</b> <i>Achillea millefolium</i>	New Vintage™ Series, Song Siren™ Layla	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 60 to 65°F (16 to 18°C)	Long day facultative	No	5,000 to 8,000	Allow media to dry regularly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Generally not required	PGRs generally not needed	Pythium and rhizoctonia can result from overwatering.	Unrooted: 13-15 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	12-14 in. (30-36 cm)	4-9	April to September
25	 <b>AGASTACHE</b> <i>Agastache rugosa</i>	Little Adder	5.8-6.2	Nights: 50 to 55°F (10 to 13°C) Days: 60 to 65°F (16 to 18°C)	Long day facultative	No	3,000 to 5,000	Allow media to dry regularly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Recommended	PGRs generally not needed	Thrips, white fly	Not recommended	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	15-18 in. (38-46 cm)	5-9	April to September
27	 <b>ALYSSUM</b> <i>Alyssum wulfenianum</i>	Golden Spring	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 60 to 65°F (16 to 18°C)	Day length neutral	Yes	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Recommended	PGRs generally not needed	None noted	Unrooted: stick week 30-35 Rooted: plant week 35-40	Unrooted: stick week 26-32 Rooted: plant week 31-36	Unrooted: stick week 22-26 Rooted: plant week 27-31	6-8 in. (15-20 cm)	4-9	April to May
29	 <b>ARMERIA</b> <i>Armeria pseudarmeria</i>	Dreameria® Series	5.8-6.2	Nights: 55°F (13°C) Days: 68°F (20°C)	Day length neutral	No	3,000 to 5,000	Moderate	Use a balanced fertilizer at a rate of 150 to 175 ppm N.		None	PGRs generally not needed	Watch for crown rot if overwatered.	Liner: 10-12 wks	Liner: 14-16 wks	Liner: 16-18 wks	10-12 in. (25-30 cm)	5-9	March to October
34	 <b>CARYOPTERIS</b> <i>Caryopteris x clandonensis</i>	Gold Crest	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 65 to 75°F (18 to 24°C)	Long day obligate	No	5,000 to 8,000	Allow media to dry regularly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		One pinch, two to three weeks after transplant.	PGRs generally not needed	Thrips, spider mites	Not recommended	Rooted: 12-14 wks	Rooted: 14 wks	28-36 in. (71-91 cm)	6-9	August to October
34	 <b>CARYOPTERIS</b> <i>Caryopteris x clandonensis</i>	Grand Bleu®	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 65 to 75°F (18 to 24°C)	Long day obligate	No	5,000 to 8,000	Allow media to dry regularly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		None	PGRs generally not needed	Spider mites	Not recommended	Rooted: 12-14 wks	Rooted: 14 wks	48 in. (122 cm)	6-9	August to October
38	 <b>COREOPSIS</b> <i>Coreopsis grandiflora</i>	Sunny Day	5.8-6.2	Nights: 55 to 60°F (13 to 16°C) Days: 60 to 65°F (16 to 18°C)	Long day obligate	No	5,000 to 8,000	Allow media to dry evenly between watering.	Maintain constant fertilization at 150 to 200 ppm N.		Recommended	B-Nine 1,500 ppm/Cycocel 800 ppm tank mix for height control	Keep good air movement to control powdery mildew.	Not recommended	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	18-24 in. (46-61 cm)	4-9	June to September
35	 <b>COREOPSIS</b> <i>Coreopsis hybrida</i>	Electric Sunshine	5.8-6.2	Nights: 55 to 65°F (13 to 17°C) Days: 60 to 80°F (15 to 27°C)	Day length neutral	No	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Yes, as needed.	PGRs generally not needed	Spider mites, thrips	Not recommended	Rooted: 8-10 wks	Rooted: 10-12 wks	18-24 in. (46-61 cm)	8-9	June to November
35, 36, 37	 <b>COREOPSIS</b> <i>Coreopsis hybrida</i>	Golden Stardust, Super Star, UpTick™ Series	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Day length neutral	No	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Yes	PGRs are generally not needed	Spider mites, thrips	Rooted: 7-8 wks	Rooted: 10-12 wks	Rooted: 12-14 wks	12-14 in. (30-36 cm)	5-9	March to November
38	 <b>COREOPSIS</b> <i>Coreopsis verticillata</i>	Crème Caramel	5.8-6.2	Days: 55 to 80°F (13 to 27°C)	Long day obligate	Beneficial to enhance bulking and plant size.	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Recommended	PGRs generally not needed	Powdery mildew, aphids	Not recommended	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	18 in. (46 cm)	5-9	May to July
38	 <b>COREOPSIS</b> <i>Coreopsis verticillata</i>	Sylvester	5.8-6.2	Days: 55 to 80°F (13 to 27°C)	Long day obligate	No	5,000 to 8,000	Allow media to dry evenly between watering.	Maintain constant fertilization at 150 to 200 ppm N.		Recommended	PGRs generally not needed	Manage soil moisture to avoid root diseases.	Unrooted: 13-15 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	16-20 in. (41-51 cm)	4-9	June to September
11	 <b>DIANTHUS</b> <i>Dianthus hybrida</i>	Mountain Frost™ Collection	5.8-6.2	45 to 60°F (7 to 16°C)	Day length neutral	Beneficial for an increased quantity of Spring blooms.	3,000 to 5,000	Low to moderate	Use a balanced fertilizer at a rate of 125 to 150 ppm N.		None	Not necessary	Thrips, carnation mottle virus	18-20 wks, including 6 wks below 50°F (10°C)	18-20 wks, including 6 wks below 50°F (10°C)	Not recommended	Varies by variety	4-9	March to October

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														1-QT.(10-CM) POT, 1 PLANT PER POT	1-GAL.(15-CM) POT, 1 PLANT PER POT	2 TO 3-GAL. (25 TO 30-CM) POT, 3 PLANTS PER POT	HEIGHT	USDA HARDINESS ZONES	BLOOM MONTHS
*	 <b>DIGITALIS</b> <i>Digitalis hybrida</i>	Arctic Fox Rose	5.8-6.2	Nights: 55 to 60°F (13 to 16°C) Days: 60 to 65°F (16 to 18°C)	Long day facultative	No	3,000 to 5,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Recommended for more flowers per plant. Not required.	PGRs generally not needed	Aphids, white fly, spider mites	Not recommended	Rooted: 12-14 wks	Rooted: 14 wks	18-24 in. (46-61 cm)	5-9	April to September; Natural season flowering
14	 <b>ECHINACEA</b> <i>Echinacea x hybrida</i>	Double Scoop™ Series	5.8-6.2	Nights: 55 to 60°F (13 to 16°C) Days: 60 to 65°F (16 to 18°C)	Long day obligate	No	3,500 to 5,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		None	None	None noted	14-16 wks Spring plant; 11-13 wks Summer plant for Fall	14-16 wks Spring plant; 11-13 wks Summer plant for Fall	14-16 wks Spring plant; 11-13 wks Summer plant for Fall	22-24 in. (56-61 cm)	4-9	June to August
12	 <b>ECHINACEA</b> <i>Echinacea x hybrida</i>	Sombrero® Series	5.8-6.2	60 to 68°F (16 to 20°C)	Long day obligate	No	5,000 to 8,000	Moderate	Use a balanced fertilizer at a rate of 150 to 175 ppm N.		Only to remove premature flower buds.	Not recommended. 300 ppm Configure 2 weeks after transplant when greenhouse grown will reduce overall plant height.	Not particularly sensitive. Use well-drained media.	Not recommended	10-12 wks	Liner: 16-18 wks	18-20 in. (46-51 cm)	4-9	June to August
13	 <b>ECHINACEA</b> <i>Echinacea x hybrida</i>	Sombrero Poco™ Series	5.8-6.2	60 to 68°F (16 to 20°C)	Long day obligate	No	5,000 to 8,000	Moderate	Use a balanced fertilizer at a rate of 150 to 175 ppm N.		Only to remove premature flower buds.	Typically not required	Not particularly sensitive. Use well-drained media.	Not recommended	10-12 wks	Not recommended	14-16 in. (36-41 cm)	4-9	June to August
41	 <b>EUPATORIUM</b> <i>Eupatorium dubium</i>	Little Joe	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 65 to 75°F (18 to 24°C)	Long day obligate	No	5,000 to 8,000	Allow media to dry moderately between watering. Prefers moist soils.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Recommended	Concise/ Sumagic 30-60 ppm spray	None noted	Not recommended	Rooted: 20 wks	Rooted: 20 wks	36-48 in. (91-122 cm)	3-9	July to September
41	 <b>EUPATORIUM</b> <i>Eupatorium purpureum</i>	Euphoria™ Ruby	5.8-6.2	Nights: 55 to 60°F (13 to 16°C) Days: 60 to 65°F (16 to 18°C)	Long day obligate	No	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 150 to 175 ppm.		One pinch, two to three weeks after transplant	PGRs generally not needed	Aphids, white fly, spider mites	Not recommended	Unrooted: 15-17 wks Rooted: 10-12 wks Natural flowering in early July	Unrooted: 15-17 wks Rooted: 10-12 wks Natural flowering early July	24-32 in. (61-81 cm)	5-9	July to October
44	 <b>GAURA</b> <i>Gaura lindheimeri</i>	Ballerina™ Series, Belleza® Series	5.8-6.2	Nights: 56 to 61°F (13 to 16°C) Days: 71 to 76°F (21 to 24°C)	Day length neutral	No	5,000 to 9,000	Allow media to dry slightly between watering.	Maintain constant fertilization at 175 to 225 ppm N.		Recommended	PGRs generally not needed	Pythium, rhizoctonia, botrytis	Unrooted: 10-13 wks Rooted: 7-10 wks	Unrooted: 12-15 wks, 2-3 ppp Rooted: 9-12 wks, 2-3 ppp	Unrooted: 14-16 wks, 3-5 ppp Rooted: 11-13 wks, 3-5 ppp	12-18 in. (30-46 cm)	6-9	April to September
43	 <b>GAURA</b> <i>Gaura lindheimeri</i>	Little Janie, Whiskers Deep Rose	5.8-6.2	Nights: 50 to 55°F (10 to 13°C) Days: 55 to 60°F (13 to 16°C)	Day length neutral	No	3,000 to 5,000	Allow media to dry regularly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Recommended	PGRs generally not needed	Spider mites, aphids	Unrooted: 12-14 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	Little Janie: 16-18 in. (41- 46 cm) Whiskers Deep Rose: 14-16 in. (36- 41 cm)	6-9	April to September
45	 <b>HELENIUM</b> <i>Helenium autumnale</i>	Salud™ Series	5.8-6.2	Nights: 55 to 65°F (13 to 17°C) Days: 60 to 80°F (15 to 27°C)	Long day obligate	No	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Yes	PGRs generally not needed	Spider mites, thrips	Not recommended	Rooted: 10-12 wks	Rooted: 10-12 wks	14-16 in. (36-41 cm)	4-9	July to September
46	 <b>HELIANTHUS</b> <i>Helianthus salicifolius</i>	Autumn Gold	5.8-6.2	55 to 70°F (13 to 21°C)	Short day obligate	No	5,000 to 8,000	Low to moderate	Use a balanced fertilizer at a rate of 150 ppm N.		Typically not necessary if plants were pinched in the liner.	Typically not necessary	Very pest and disease resistant.	Not recommended	12-14 wks. Plant Week 22-26	12-14 wks. Plant Week 22-26	24-26 in. (61-66 cm)	5-10	September to November
47, 46	 <b>HELIOPSIS</b> <i>Heliopsis helianthoides</i>	Double Sunstruck, Sunstruck	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 65 to 75°F (18 to 24°C)	Long day obligate	Beneficial; aids in bulking.	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 150 to 175 ppm.		Recommended	PGRs generally not needed	Pythium and rhizoctonia can result from overwatering. Thrips, white fly, aphids.	Unrooted: 14-16 wks Rooted: 8-10 wks	Unrooted: 16-19 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	14-16 in. (36-41 cm)	4-9	June to August
16	 <b>HEUCHERA</b> <i>Heuchera x hybrida</i>	Carnival Series	5.8-6.2	Nights: 50 to 55°F (10 to 13°C) Days: 60 to 65°F (16 to 18°C)	Day length neutral	No	1,500 to 2,500	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 100 to 125 ppm.		None	PGRs generally not needed	Pythium and rhizoctonia can result from overwatering.	Unrooted: 13-15 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	10-12 in. (25-30 cm)	4-9	April to May
50	 <b>IBERIS</b> <i>Iberis gibraltarica</i>	Lavish	5.8-6.2	Nights: 45 to 55°F (7 to 13°C) Days: 55 to 65°F (13 to 18°C)	Day length neutral	Yes	3,000 to 5,000	Allow media to dry regularly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Recommended	PGRs generally not needed	Aphids	Unrooted: 10-14 wks Rooted: 8-10 wks	Unrooted: 16-18 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	10-12 in. (25-30 cm)	6-9	April to August

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													1-QT.(10-CM) POT, 1 PLANT PER POT	1-GAL.(15-CM) POT, 1 PLANT PER POT	2 TO 3-GAL. (25 TO 30-CM) POT, 3 PLANTS PER POT	HEIGHT	USDA HARDINESS ZONES	BLOOM MONTHS	
48	 <b>IBERIS</b> <i>Iberis hybrid</i>	Summer Snowdrift	5.8-6.2	Nights: 45 to 55°F (7 to 13°C) Days: 55 to 65°F (13 to 18°C)	Day length neutral	Cuttings supplied from Darwin Colombia receive enough cold to induce into flower, so growers will not need to vernalize.	3,000 to 5,000	Allow media to dry regularly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		Recommended	PGRs generally not needed	May experience root rot diseases under poor growing conditions. Aphids.	Unrooted: 10-14 wks Rooted: 8-10 wks	Unrooted: 16-18 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	10-12 in. (25-30 cm)	6-9	April to September
49	 <b>IBERIS</b> <i>Iberis sempervirens</i>	Snowsation	5.8-6.2	45 to 60°F (7 to 16°C)	Day length neutral	Yes	3,000 to 5,000	Low to moderate	Use a balanced fertilizer at a rate of 150 to 175 ppm N.	Only if pinching not done in the liner stage.	Not typically needed	Not particularly sensitive.	24 wks; requires vernalization	24 wks; requires vernalization	Not recommended	6-8 in. (15-20 cm)	4-9	March to April	
51	 <b>LAVANDULA</b> <i>Lavandula angustifolia</i>	Annet	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 65 to 75°F (18 to 24°C)	Long day facultative	No	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Once for smaller pot sizes, twice for larger containers.	PGRs generally not needed	Thielaviopsis, pythium and rhizoctonia can result from overwatering. Thrips, white fly, aphids, fungus gnats.	Unrooted: 14-16 wks Rooted: 7-8 wks	Unrooted: 16-19 wks Rooted: 9-11 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	16-18 in. (41-46 cm)	5-9	April to September	
51	 <b>LAVANDULA</b> <i>Lavandula angustifolia</i>	SuperBlue	5.9-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 65 to 75°F (18 to 24°C)	Long day facultative	No	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Once for smaller pot sizes, twice for larger containers.	PGRs generally not needed	Thielaviopsis, pythium and rhizoctonia can result from overwatering. Thrips, white fly, aphids, fungus gnats.	Unrooted: 14-16 wks Rooted: 7-8 wks	Unrooted: 16-19 wks Rooted: 9-11 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	10-12 in. (25-30 cm)	5-8	April to September	
53, 54	 <b>LAVANDULA</b> <i>Lavandula stoechas</i>	Anouk Series, Bright Luxurious, Luxurious	5.8-6.2	Nights: 56 to 64°F (13 to 18°C) Days: 65 to 76°F (18 to 24°C)	Day length neutral	Beneficial for earlier flowering and more blooms.	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 100 to 125 ppm.	Recommended	PGRs generally not needed	Thielaviopsis, pythium and rhizoctonia can result from overwatering. Thrips, white fly, aphids, fungus gnats.	7-10 wks	9-11 wks, 1-3 ppp	10-12 wks, 3-5 ppp	14-18 in. (36-46 cm)	6-9	March to July	
*	 <b>LAVANDULA</b> <i>Lavandula stoechas</i>	Primavera	5.8-6.2	Nights: 56 to 64°F (13 to 18°C) Days: 65 to 76°F (18 to 24°C)	Day length neutral	No	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 100 to 125 ppm.	A final pinching 8 to 10 weeks before flowering will help to increase flower count.	PGRs generally not needed	Thielaviopsis, pythium and rhizoctonia can result from overwatering. Thrips, white fly, aphids, fungus gnats.	7-10 wks	9-11 wks	10-12 wks	16-18 in. (41-46 cm)	7-9	Year round depending on location	
58	 <b>LEUCANTHEMUM</b> <i>Leucanthemum x superbum</i>	Santé	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 60 to 65°F (16 to 18°C)	Long day obligate	Beneficial for bulking and earlier flowering.	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Recommended	PGRs generally not needed	Watch for leaf spots when growing in wet conditions.	Not recommended	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	22-26 in. (56-66 cm)	4-9	June to August	
58	 <b>LEUCANTHEMUM</b> <i>Leucanthemum x superbum</i>	White Magic	5.8-6.2	55 to 65°F (13 to 18°C)	Long day facultative	No	5,000 to 8,000	Moderate; more required when in flower.	Use a balanced fertilizer at a rate of 150 to 200 ppm N.	Generally not necessary	B-Nine/ Cycocel at 1,800/800 will reduce plant height	Watch for aphids when in bud.	Not recommended	Rooted: 8-10 wks	Rooted: 10-12 wks	20-24 in. (51-61 cm)	5-9	May to August	
56	 <b>LEUCANTHEMUM</b> <i>Leucanthemum x superbum</i>	Whitecap	5.8-6.2	Nights: 55°F (13°C) Days: 68°F (20°C)	Long day facultative	No	5,000 to 8,000	Moderate	Use a balanced fertilizer at a rate of 150 to 175 ppm N.	Typically not required	Typically not required	Watch for crown rot if overwatered.	7-10 wks	9-11 wks	Not recommended	14-16 in. (36-41 cm)	5-9	March to October	
18	 <b>MISCANTHUS</b> <i>Miscanthus sinensis</i>	Bandwidth	5.8-6.5	65 to 75°F (18 to 24°C)	Long day facultative	No	5,000 to 8,000	Low to moderate	Low	No	None	Rust resistant	8-10 wks	14-16 wks	20-24 wks, 1 ppp	30-36 in. (76-91 cm)	5-9	October to November	
18	 <b>MISCANTHUS</b> <i>Miscanthus sinensis</i>	My Fair Maiden	5.8-6.5	65 to 75°F (18 to 24°C)	Short day obligate	No	5,000 to 8,000	Low to moderate	Low	No	None required	Rust resistant	Not recommended	16-18 wks	24-26 wks, 1 ppp	72-102 in. (183-259 cm)	5-9	October to November	
62	 <b>MONARDA</b> <i>Monarda didyma</i>	Balmy™ Series	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 60 to 65°F (16 to 18°C)	Long day obligate	Beneficial for bulking and earlier flowering.	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Recommended	PGRs generally not needed	Powdery mildew may be present if grown under poor air circulation and high humidity. White fly, spider mites.	Unrooted: 12-14 wks Rooted: 8-10 wks	Unrooted: 14-16 wks Rooted: 10-12 wks	Unrooted: 14-16 wks Rooted: 12-14 wks	10-12 in. (25-30 cm)	4-9	June to July	

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													1-QT.(10-CM) POT, 1 PLANT PER POT	1-GAL.(15-CM) POT, 1 PLANT PER POT	2 TO 3-GAL. (25 TO 30-CM) POT, 3 PLANTS PER POT	HEIGHT	USDA HARDINESS ZONES	BLOOM MONTHS
64	 <b>NEPETA</b> <i>Nepeta faassenii</i>	Whispurr™ Series	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 65 to 75°F (18 to 24°C)	Long day facultative	No	5,000 to 8,000	Moderate	Use a balanced fertilizer at a rate of 150 to 175 ppm N.	Typically not required	B-Nine/ Cycocel sprays 2,500/1,000 ppm	Spider mites, thrips	Not recommended	9-11 wks	10-12 wks	24-28 in. (61-71 cm)	4-9	April to September
67	 <b>NEPETA</b> <i>Nepeta hybrid</i>	Blue Prelude	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Long day facultative	No	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Not necessary when pinched in liner.	Use B-Nine/ Cycocel 2,500/800 ppm to control height	Aphids, white fly, spider mites	Not recommended	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	28-36 in. (71-91 cm)	5-9	March to September
67	 <b>NEPETA</b> <i>Nepeta x faassenii</i>	Junior Walker™	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Long day facultative	No	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Recommended	PGRs generally not needed	White fly	Unrooted: 10-14 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	18 in. (46 cm)	5-8	May to September
69	 <b>PENSTEMON</b> <i>Penstemon barbatus</i>	Rock Candy® Series	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Long day facultative	No	3,000 to 5,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 150 to 175 ppm N.	Yes	PGRs generally not needed	Spider mites, thrips. Watch for INSV/TSWV.	Unrooted: 10-14 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	12 in. (30 cm)	5-8	April to September
71	 <b>PENSTEMON</b> <i>Penstemon hybrida</i>	Cherry Sparks	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Long day facultative	No	3,000 to 5,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Yes	PGRs generally not needed	White fly, spider mites	Not recommended	Rooted: 10-12 wks	Rooted: 12-14 wks	18-20 in. (46-51 cm)	5-9	May to August
70	 <b>PENSTEMON</b> <i>Penstemon hybrida</i>	Little Bells, Mini-Bells™ Series	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Long day obligate	No	3,000 to 5,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Yes	PGRs generally not needed	Aphids, spider mites	Unrooted: 10-14 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 19-22 wks Rooted: 12-14 wks	16-18 in. (41-46 cm)	Little Bells: 6-9 Mini-Bells: 7-9	June to August
72	 <b>PENSTEMON</b> <i>Penstemon hybrida</i>	MissionBells™ Deep Rose	5.8-6.2	Nights: 45 to 70°F (7 to 21°C) Days: 55 to 80°F (13 to 27°C)	Long day obligate	No	3,000 to 5,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Yes	PGRs generally not needed	White fly, spider mites	Not recommended	Rooted: 10-12 wks	Rooted: 12-14 wks	20-24 in. (51-61 cm)	5-9	June to August
72	 <b>PENSTEMON</b> <i>Penstemon hybrida</i>	Quartz® Series	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Long day obligate	No	3,000 to 5,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Yes	PGRs generally not needed	Spider mites	Not recommended	Unrooted: 19-22 wks Rooted: 12-14 wks	Unrooted: 21-23 wks Rooted: 14-16 wks	20-24 in. (51-61 cm)	6-9	July to August
74, 73	 <b>PEROVSKIA</b> <i>Perovskia atriplicifolia</i>	CrazyBlue, Little Lace	5.8-6.2	Nights: 55 to 65°F (13 to 18°C) Days: 60 to 65°F (16 to 18°C)	Long day obligate	No	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Recommended	PGRs generally not needed	Pythium can be a problem if overwatered. White fly, spider mites.	Not recommended	Unrooted: 14-16 wks Rooted: 10-12 wks	Unrooted: 14-16 wks Rooted: 10-12 wks	CrazyBlue: 16-18 in. (41-46 cm) Little Lace: 18-24 in. (46-61 cm)	4-9	July to September
80, 77	 <b>PHLOX</b> <i>Phlox paniculata</i>	Cherry Cream, Ka-Pow® Series	5.8-6.2	60 to 75°F (16 to 24°C)	Long day obligate	No	5,000 to 8,000	Moderate	Use a balanced fertilizer at a rate of 150 to 200 ppm N.	Yes, in cases where there are two or less shoots.	Configure at 600 ppm to increase branching.	Powdery mildew when pressure is high.	Not recommended	Rooted: 10-12 wks	Rooted: 12-14 wks, 3 ppp	Cherry Cream: 22-26 in. (56-66 cm) Ka-Pow: 16-18 in. (41-46 cm)	4-9	June to August
78	 <b>PHLOX</b> <i>Phlox paniculata</i>	Super Ka-Pow™ Series	5.8-6.2	Nights: 56 to 64°F (13 to 18°C) Days: 65 to 76°F (18 to 24°C)	Long day obligate	No	5,000 to 8,000	Moderate	Use a balanced fertilizer at a rate of 150 to 175 ppm N.	Yes, in cases where there are two or less shoots.	Configure at 600 ppm to increase branching.	Powdery mildew when pressure is high.	Not recommended	Rooted: 10-12 wks	Rooted: 12-14 wks	18-20 in. (46-51 cm)	4-9	June to August
85	 <b>SALVIA</b> <i>Salvia greggii</i>	Mirage™ Series	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Day length neutral	No	3,000 to 5,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 150 to 175 ppm N.	Yes	Generally not needed	Whitefly, thrips	Rooted: 6-8 wks	Rooted: 8-10 wks	Rooted: 12-14 wks	12-14 in. (30-36 cm)	7-9	March to September
86	 <b>SALVIA</b> <i>Salvia greggii</i>	Radio Red	5.8-6.2	Nights: 45 to 70°F (7 to 21°C) Days: 55 to 80°F (13 to 27°C)	Day length neutral	No	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Once for smaller pot sizes, twice for larger containers.	PGRs generally not needed	White fly, spider mites	Unrooted: 12-14 wks Rooted: 8-10 wks	Unrooted: 14-16 wks Rooted: 10-12 wks	Unrooted: 16-18 wks Rooted: 12-14 wks	16-18 in. (41-46 cm)	7-10	March to September
87	 <b>SALVIA</b> <i>Salvia hybrida</i>	Arctic Blaze® Series	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Day length neutral	No	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 150 to 175 ppm.	Yes	PGRs generally not needed	Thrips	Not recommended	Unrooted: 14-16 wks Rooted: 10-12 wks	Unrooted: 16-18 wks Rooted: 12-14 wks	24 in. (61 cm)	6-11	March to September

\* See DarwinPerennials.com

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PAGE	CROP	SERIES/ VARIETY	MEDIA PH	TEMPERATURE	DAYLENGTH	VERNALIZATION REQUIRED	LIGHT LEVELS IN FOOT CANDLES	WATERING	FERTILIZATION		PINCHING AFTER TRANSPLANT	PLANT GROWTH REGULATORS	PESTS AND FUNGAL DISEASES	CROP SCHEDULE & USES					
														1-QT.(10-CM) POT, 1 PLANT PER POT	1-GAL.(15-CM) POT, 1 PLANT PER POT	2 TO 3-GAL. (25 TO 30-CM) POT, 3 PLANTS PER POT	HEIGHT	USDA HARDINESS ZONES	BLOOM MONTHS
86	 <b>SALVIA</b> <i>Salvia hybrida</i>	Blue by You	5.8-6.2	Nights: 45 to 55°F (7 to 13°C) Days: 55 to 65°F (13 to 18°C)	Day length neutral	Beneficial; aids in bulking. Not required for flowering.	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 150 to 200 ppm.		Yes	PGRs generally not needed	White fly, spider mites, botrytis	Unrooted: 13-15 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 17-19 wks Rooted: 12-14 wks	20-22 in. (51-56 cm)	4-9	March to September
88, 89	 <b>SALVIA</b> <i>Salvia nemorosa</i>	Blue Marvel, Lyrical™ Series	5.8-6.2	Nights: 45 to 55°F (7 to 13°C) Days: 55 to 65°F (13 to 18°C)	Day length neutral	Beneficial; aids in bulking. Not required for flowering.	5,000 to 8,000	Allow media to dry moderately between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.		None	PGRs generally not needed	White fly, spider mites, botrytis	Unrooted: 13-15 wks Rooted: 8-10 wks	Unrooted: 15-17 wks Rooted: 10-12 wks	Unrooted: 17-19 wks Rooted: 12-14 wks	10-12 in. (25-30 cm)	4-9	March to September
*	 <b>SALVIA</b> <i>Salvia nemorosa</i>	Rose Marvel, Sky Blue Marvel	5.8-6.2	55 to 65°F (13 to 18°C)	Day length neutral	Beneficial; aids in bulking. Not required for flowering.	5,000 to 8,000	Moderate	Use a balanced fertilizer at a rate of 175 to 200 ppm N.	Generally not required	Will respond to 300 ppm Configure spray at young plant level	Spider mites	Not recommended	10-12 wks	12-14 wks	10-12 in. (25-30 cm)	4-9	March to September	
93	 <b>SCABIOSA</b> <i>Scabiosa columbaria</i>	Flutter™ Series	5.5-6.2	55 to 65°F (13 to 18°C)	Day length neutral	No	5,000 to 8,000	Moderate	Use a balanced fertilizer at a rate of 150 to 175 ppm N.	Typically not necessary	Typically not necessary	Very disease resistant. Watch for root and crown rot under poor growing conditions.	Not recommended	Rooted: 10-12 wks	Rooted: 10-12 wks	12-14 in. (30-36 cm)	5-9	March to September	
95	 <b>SEDUM</b> <i>Sedum rupestre</i>	Prima Angelina	5.8-6.2	Nights: 55 to 70°F (13 to 21°C) Days: 60 to 80°F (15 to 27°C)	Long day obligate	No	5,000 to 8,000	Allow media to dry regularly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	One pinch, two to three weeks after transplant.	PGRs generally not needed	Generally pest and disease free.	Unrooted: 10-12 weeks Rooted: 6 weeks	Unrooted: 12-14 weeks Rooted: 8-10 weeks	Unrooted: 15-17 wks Rooted: 10-12 wks	3-6 in. (8-15 cm)	4-9	Does not flower	
101	 <b>VERONICA</b> <i>Veronica austriaca</i>	Venice Blue	5.8-6.2	Nights: 50 to 55°F (10 to 13°C) Days: 60 to 65°F (16 to 18°C)	Day length neutral	Yes	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Yes	PGRs generally not needed	Aphids	Unrooted: Plant by Week 40 (North), Week 45 (South) Rooted: Stick by Week 35 (North), Week 40 (South)	Unrooted: Plant by Week 35 (North), Week 40 (South) Rooted: Stick by Week 30 (North), Week 35 (South)	Unrooted: Plant by Week 32 (North), Week 37 (South) Rooted: Stick by Week 28 (North), Week 32 (South)	10-12 in. (25-30 cm)	4-9	March to April	
102	 <b>VERONICA</b> <i>Veronica hybrida</i>	Moody Blues® Series	5.8-6.2	Nights: 50 to 55°F (10 to 13°C) Days: 60 to 70°F (16 to 20°C)	Long day facultative	No	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Yes	PGRs generally not needed	Aphids, white fly	Unrooted: 10-14 wks Rooted: 8-10 wks	Unrooted: 14-16 wks Rooted: 10-12 wks	Unrooted: 16-18 wks Rooted: 12-14 wks	12-14 in. (30-36 cm)	4-9	May to October	
101	 <b>VERONICA</b> <i>Veronica longifolia</i>	Forever Blue	5.8-6.2	Nights: 50 to 55°F (10 to 13°C) Days: 60 to 70°F (16 to 20°C)	Long day facultative	No	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Yes	PGRs generally not needed	Aphids, white fly	Not recommended	Unrooted: 14-16 wks Rooted: 10-12 wks	Unrooted: 16-18 wks Rooted: 12-14 wks	16-18 in. (41-46 cm)	4-9	June to October	
103	 <b>VERONICA</b> <i>Veronica x hybrida</i>	Purpleicious	5.8-6.2	Nights: 50 to 55°F (10 to 13°C) Days: 60 to 65°F (16 to 18°C)	Long day obligate	Beneficial for bulking and earlier flowering.	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced fertilizer at a rate of 125 to 150 ppm.	Yes	PGRs generally not needed	Aphids, white fly	Not recommended	Unrooted: Plant by Week 35 (North), Week 40 (South) Rooted: Stick by Week 30 (North), Week 35 (South)	Unrooted: Plant by Week 32 (North), Week 37 (South) Rooted: Stick by Week 28 (North), Week 32 (South)	16-20 in. (41-51 cm)	5-8	June to August	
104	 <b>VIOLA</b> <i>Viola cornuta</i>	Halo Series	5.5-5.8	Nights: 50 to 55°F (10 to 13°C) Days: 60 to 65°F (16 to 18°C)	Day length neutral	No	5,000 to 8,000	Allow media to dry slightly between watering.	Use a balanced Pansy/Viola fertilizer at a rate of 125 to 150 ppm.	Recommended	PGRs generally not needed	Watch for thielaviopsis, pythium, white fly, spider mites.	Unrooted: 11-13 wks Rooted: 6-8 wks	Unrooted: 13-15 wks Rooted: 8-10 wks	Unrooted: 13-15 wks Rooted: 8-10 wks	8-10 in. (20-25 cm)	4-9	February to October	

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