


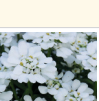



DARWIN PERENNIALS PROPAGATION GUIDE

PAGE	CROP	SERIES/VARIETY	MEDIA EC/PH	SOIL TEMPERATURE	ROOTING HORMONE	MIST	FERTILIZATION	PINCHING	TRANSPLANTING	COMMENTS
23	 ACHILLEA <i>Achillea hybrida</i>	Moon Dust	EC 1.0-1.25 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500-1,000 ppm IBA					
22	 ACHILLEA <i>Achillea millefolium</i>	Milly Rock™ Series	EC 1.0-1.25 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500-1,000 ppm IBA					
20, 23	 ACHILLEA <i>Achillea millefolium</i>	New Vintage™ Series, Song Siren™ Layla	EC 1.0-1.25 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500-1,000 ppm IBA					
25	 AGASTACHE <i>Agastache rugosa</i>	Little Adder	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA					
27	 ALYSSUM <i>Alyssum wulfenianum</i>	Golden Spring	EC 0.80-1.0 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA					
29	 ARMERIA <i>Armeria pseudarmeria</i>	Dreameria® Series	EC 0.80 mmhos/pH 5.8-6.2	70-74°F (21-23°C)	2,500 ppm IBA					
34	 CARYOPTERIS <i>Caryopteris x clandonensis</i>	Gold Crest, Grand Bleu®	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000-3,000 ppm IBA					
38	 COREOPSIS <i>Coreopsis grandiflora</i>	Sunny Day	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000 ppm IBA					
35, 36, 37	 COREOPSIS <i>Coreopsis hybrida</i>	Electric Sunshine, Golden Stardust, Super Star, UpTick™ Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500-1,000 ppm IBA					
38	 COREOPSIS <i>Coreopsis verticillata</i>	Crème Caramel, Sylvester	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000 ppm IBA					
11	 DIANTHUS <i>Dianthus hybrida</i>	Mountain Frost™ Collection	EC 0.80 mmhos/pH 5.8-6.2	68-70°F (20-21°C)	500 ppm IBA					
*	 DIGITALIS <i>Digitalis hybrida</i>	Arctic Fox Rose	EC 0.75-0.80 mmhos/pH 6.0-6.4	70-72°F (21-22°C)	1,000 ppm IBA basal dip					
14, 12, 13	 ECHINACEA <i>Echinacea x hybrida</i>	Double Scoop™ Series, Sombrero® Series, Sombrero Poco™ Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	72-78°F (21-24°C)	none					
41	 EUPATORIUM <i>Eupatorium dubium</i>	Little Joe	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA					
41	 EUPATORIUM <i>Eupatorium purpureum</i>	Euphoria™ Ruby	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA					






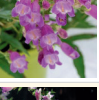


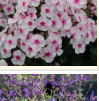





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44	 GAURA <i>Gaura lindheimeri</i>	Ballerina™ Series, Belleza® Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	68-73°F (20-23°C)	500 ppm IBA	Low to moderate	75-100 ppm N when roots become visible; increase to 150-200 ppm N as roots develop	Yes, 7 days before transplanting.	35-42 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation.
43	 GAURA <i>Gaura lindheimeri</i>	Little Janie, Whiskers Deep Rose	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA	Low to moderate	50-75 ppm N when roots become visible	Recommended after roots are established. Leave 4-5 active internodes.	35-42 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation.
45	 HELENIUM <i>Helenium autumnale</i>	Salud™ Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000 ppm IBA	Moderate	50-75 ppm N	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation.	42-49 days after sticking	Pinch once in the liner stage.
46	 HELIANTHUS <i>Helianthus salicifolius</i>	Autumn Gold	EC 0.80 mmhos/pH 5.8-6.2	70-74°F (21-23°C)	500 ppm IBA	Low	Feed at 100 ppm N after 9 days	Pinch once shoots elongate for best branching.	35-42 days after sticking	Typically remove from propagation area after two weeks. Don't keep rooting media excessively wet. Use long-day lighting when propagating when day length is less than 12 hours.
47, 46	 HELIOPSIS <i>Heliopsis helianthoides</i>	Double Sunstruck, Sunstruck	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000 ppm IBA	Low	50-75 ppm N when roots become visible	Recommended after roots are established. Leave 4-5 active internodes.	35-42 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation. Long day obligate plant. Must provide long days in propagation.
16	 HEUCHERA <i>Heuchera x hybrida</i>	Carnival Series	EC 0.80-1.0 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500-1,000 ppm IBA	Low to moderate	50-75 ppm N after 14 days	Not necessary.	35-42 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation.
50	 IBERIS <i>Iberis gibraltarica</i>	Lavish	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA	Low to moderate	50-75 ppm N when roots become visible	Recommended after roots are established. Leave 4-5 active internodes.	28-35 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation.
48	 IBERIS <i>Iberis hybrid</i>	Summer Snowdrift	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA	Low to moderate	50-75 ppm N when roots become visible	Recommended after roots are established. Leave active internodes.	28-35 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation. Cuttings typically arrive with flowers already induced due to cool night temperatures in Colombia. Non-induced cuttings require 6 weeks of night temperatures below 55°F (13°C) to flower.
49	 IBERIS <i>Iberis sempervirens</i>	Snowsation	EC 0.80 mmhos/pH 5.8-6.2	68-72°F (20-22°C)	300 ppm IBA	Low to moderate	100 ppm N starting at Day 10	Yes, pinch after 4 weeks. Can be double pinched in the liner stage for even greater branching.	42-49 days after sticking	Iberis benefit from a basal IBA dip prior to sticking. Do not over-mist or high losses can occur.
51	 LAVANDULA <i>Lavandula angustifolia</i>	Annet, SuperBlue	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA	Low; prefers high humidity rather than mist.	50-75 ppm N	Recommended.	42-56 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation.
53, 54	 LAVANDULA <i>Lavandula stoechas</i>	Anouk Series, Bright Luxurious, Luxurious	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA	Low; prefers high humidity rather than mist.	50-75 ppm N	Recommended after roots are established. Leave 4-5 active internodes.	42-56 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation.
*	 LAVANDULA <i>Lavandula stoechas</i>	Primavera	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA	Low; prefers high humidity rather than mist.	50 ppm N starting at Day 7	Recommended after roots are established. Leave 4-5 active internodes.	42-56 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation.
58	 LEUCANTHEMUM <i>Leucanthemum x superbum</i>	Santé	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA	Low	50-75 ppm N	Not typically necessary.	42-56 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C). Remove flowers in propagation.
58	 LEUCANTHEMUM <i>Leucanthemum x superbum</i>	White Magic	EC 0.80 mmhos/pH 5.8-6.4	68-74°F (20-23°C)	500 ppm IBA	Low to moderate	75-100 ppm N starting at Day 7	Pinch while young plants are soft and actively growing.	35-42 days after sticking	Pinch any premature buds as they become visible.
56	 LEUCANTHEMUM <i>Leucanthemum x superbum</i>	Whitecap	EC 0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA	Low to moderate	50 ppm N starting at Day 7	Pinch 21 days after sticking.	35-42 days after sticking	For fastest, most reliable rooting, do not oversaturate rooting media.

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62	 MONARDA <i>Monarda didyma</i>	Balmy™ Series	EC 1.0-1.25 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate	50-75 ppm N	Recommended.	28-35 days after sticking	Do not oversaturate rooting media. Use long-day lighting when day length is less than 12 hours to keep plants actively growing.
64	 NEPETA <i>Nepeta faassenii</i>	Whispurr™ Series	EC 0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Low to moderate	50-75 ppm N	Yes, pinch 14-18 days after stick.	35-42 days after sticking	Nepeta root easily. Over-misting causes slow rooting and leaf spot diseases.
67	 NEPETA <i>Nepeta hybrid</i>	Blue Prelude	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500-1,000 ppm IBA		Moderate	50-75 ppm N	Recommended.	35-42 days after sticking	Roots quickly. Plan to pinch in liner tray.
67	 NEPETA <i>Nepeta x faassenii</i>	Junior Walker™	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500-1,000 ppm IBA		Moderate	50-75 ppm N	Recommended.	35-42 days after sticking	Roots quickly. Plan to pinch in liner tray.
69	 PENSTEMON <i>Penstemon barbatus</i>	Rock Candy® Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate to high for first 24 hours, then reduce to low.	50-75 ppm N	Recommended.	35-42 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C).
71, 70, 72	 PENSTEMON <i>Penstemon hybrida</i>	Cherry Sparks, Little Bells, MissionBells™, Deep Rose, Quartz® Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate to high for first 24 hours, then reduce to low.	50-75 ppm N	Recommended.	35-42 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C).
70	 PENSTEMON <i>Penstemon hybrida</i>	Mini-Bells™ Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Low to moderate	50-75 ppm N when roots become visible	Recommended.	35-42 days after sticking	Use low mist settings; do not oversaturate rooting media.
74, 73	 PEROVSKIA <i>Perovskia atriplicifolia</i>	CrazyBlue, Little Lace	EC 1.0-1.25 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000-1,500 ppm IBA		Moderate to high for first 24 hours, then reduce to low.	50-75 ppm N after 10 days	Recommended.	35-42 days after sticking	Do not oversaturate rooting media. Allow media to dry moderately starting 10 days after sticking to encourage root development.
80, 77, 78	 PHLOX <i>Phlox paniculata</i>	Cherry Cream, Ka-Pow® Series, Super Ka-Pow™ Series	EC 0.80 mmhos/pH 5.8-6.2	68-74°F (20-23°C)	500 ppm IBA		Low to moderate	75-100 ppm N starting at Day 7	Yes, while young plants are soft and actively growing. Allow at least two leaf internodes at each pinch.	42-49 days after sticking	Plants grow more actively under long days. Use 13-hour extended day lighting for Winter propagation.
85	 SALVIA <i>Salvia greggii</i>	Mirage™ Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate	50-75 ppm N	Recommended after roots are established. Leave 4-5 active internodes.	35-42 days after sticking	Use low mist settings; do not oversaturate rooting media. Root zone temperatures of 70°F (21°C).
86	 SALVIA <i>Salvia greggii</i>	Radio Red	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate	50-75 ppm N	Recommended after roots are established. Leave 4-5 active internodes.	35-42 days after sticking	Begin fertilizing 7 days after stick.
87	 SALVIA <i>Salvia hybrida</i>	Arctic Blaze® Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate	50-75 ppm N	Recommended after roots are established. Leave 4-5 active internodes.	35-42 days after sticking	Roots quickly. Plan to pinch in liner tray.
86	 SALVIA <i>Salvia hybrida</i>	Blue by You	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000 ppm IBA		Low	50-75 ppm N at Day 7	A soft pinch will increase branching.	35-42 days after sticking	Discontinue mist as quickly as possible and only mist to avoid leaf wilt. Begin feeding 7 days after sticking with 50-75 ppm N.
88	 SALVIA <i>Salvia nemorosa</i>	Blue Marvel	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000 ppm IBA		Low	50-75 ppm N at Day 7	A soft pinch will increase branching.	35-42 days after sticking	Discontinue mist as quickly as possible and only mist to avoid leaf wilt.

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89	 SALVIA <i>Salvia nemorosa</i>	Lyrical™ Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000 ppm IBA		Low	50-75 ppm N at Day 7	A soft pinch will increase branching.	35-42 days after sticking	Discontinue mist as quickly as possible and only mist to avoid leaf wilt. Begin feeding 7 days after sticking with 50-75 ppm N.
*	 SALVIA <i>Salvia nemorosa</i>	Rose Marvel, Sky Blue Marvel	EC 0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000 ppm IBA basal dip		Low	50-75 ppm N at Day 7	A soft pinch will increase branching.	35-42 days after sticking	Over-misting and saturated propagation media will dramatically delay rooting and increase rooting losses. Discontinue mist as quickly as possible and only mist to avoid leaf wilt.
93	 SCABIOSA <i>Scabiosa columbaria</i>	Flutter™ Series	EC 0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	1,000 ppm IBA		Low to moderate	75-100 ppm N starting at Day 10	Typically not necessary. Remove premature flower buds as they appear.	42-49 days after sticking	Scabiosa cuttings are sensitive to over-misting and over-watering in propagation.
95	 SEDUM <i>Sedum rupestre</i>	Prima Angelina	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Very low	50-75 ppm N	Typically not necessary in propagation.	35-42 days after sticking	Do not over mist. Over saturated rooting media will slow the rooting process and contribute to stem rot. Remove from mist environment as soon as roots appear.
101	 VERONICA <i>Veronica austriaca</i>	Venice Blue	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate	50-75 ppm N	Recommended after roots are established. Leave 4-5 active internodes.	35-42 days after sticking	Roots quickly. Plan to pinch in liner tray.
102	 VERONICA <i>Veronica hybrida</i>	Moody Blues® Series	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate	50-75 ppm N	Recommended after roots are established. Leave 4-5 active internodes.	35-42 days after sticking	Roots quickly. Plan to pinch in liner tray.
101	 VERONICA <i>Veronica longifolia</i>	Forever Blue	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate	50-75 ppm N	Recommended after roots are established. Leave 4-5 active internodes.	35-42 days after sticking	Roots quickly. Plan to pinch in liner tray.
103	 VERONICA <i>Veronica x hybrida</i>	Purpleicious	EC 0.75-0.80 mmhos/pH 5.8-6.2	70-72°F (21-22°C)	500 ppm IBA		Moderate	50-75 ppm N	Recommended after roots are established. Leave 4-5 active internodes.	35-42 days after sticking	Roots quickly. Plan to pinch in liner tray.
104	 VIOLA <i>Viola cornuta</i>	Halo Series	EC 0.80-1.0 mmhos/pH 5.5-5.8	70-72°F (21-22°C)	500-750 ppm IBA		Moderate for first 24-48 hours, then reduce to low.	50-75 ppm N at Day 7	Soft pinch recommended 25-28 days after sticking.	35-42 days after sticking	Excessive media moisture will slow rooting. Begin fertilizing at Day 7 with 75 ppm N.

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