

GREENHOUSE GROWER BONUS EDITION

FALL 1992

(Plug Guide)

The tables on the following pages are from the 1992 fall plug guide from Greenhouse Grower. They are included as reference material from your operation.

GERMINATION

A WORD ABOUT VEGETABLE TRANSPLANTS

| Germination Time | Temperature | Fertilization | Comments |
|--------------------|---|---|---|
| Celery | 10-21 Days Germinate at 65°F; grow on at 60°F | Continuous feed at 50-100 ppm N-P-K | Don't hold celery back by dropping temperature. Seed stock formation is triggered at any stage but is not visible until 3 weeks before harvest. |
| Broccoli | 4-10 days 60-65°F | | In all crucifers, environmental stress in juvenile stages can be used to check growth without harming plants. To reduce risk of premature bolting, don't drop temperature in adult stage. |
| Cabbage | 4-10 days 60-65°F days; 55°F nights | Continuous feed at 50 ppm or less N-P-K | |
| Cauliflower | 10 days 70°F | | |
| Tomatoes | 14 days 70-72°F | Twice a week at 100 ppm or less N-P-K | Don't use excess fertilizer. Dropping the temperature on fresh market cultivars causes cat-facing. |
| Peppers | 10-21 days 80°F | Continuous feed at 100 ppm N-P-K | Growth cycle interruptions cause formation defects in first cluster. |

CROP TIME - SOWING TO FLOWERING

| CROP | PLUG TIME (in days) | GREENHOUSE (time from sow date in months) | FIELD | COMMENTS |
|----------------------------|--------------------------------|--|--------------|--|
| Achillea millefolium (P) | 40-45 | 4 | 6.5 | A. filipendula requires 1 year to flower profusely. A. ptarmica will grow and flower like A. millefolium. |
| Ammi majus | 45-52 | 3 | 3-3.5 | |
| Aster (fall bloom) | 35-42 | 4-6 | 3.5 | Requires short days to flower. |
| Bells of Ireland | 35-42 | 2-3 | 3-4 | |
| Calendula | 28-35 | 4-4.5 | | |
| Campanula persicifolia (P) | 57-65 | Requires 1 year to flower | | |
| Centaurea cyanus | 30-45 | **3/spring, 5/winter | 3.5 | |
| Cirsium | 45-60 | 4-4.5 | 6.5 | Rose grows faster than pink which will require several more days to develop into a saleable plug. |
| Craspedia | 56-63 | 5.5 | 6.5 | |
| Delphinium | 56-63 | 6 | 6-7 | Pacific Courtseries and similar types. |
| Dianthus chinensis | 77-80 | 4.5 | 4.5-5.5 | |
| Dianthus belladonna | 56-70 | 6 | 6 | |
| Dianthus barbatus | 56-63 | Requires 1 year to flower | | There are annual flowering cut selections that flower in the field 22-25 weeks after sowing the seed. Start early or order in plugs for planting no later than the last week of May. |
| Didiscus | 40-55 | 3.5-4 | 4-5 | |
| Digitalis | 40-45 | - | 4 | Choose annual flowering cultivars as 'Foxy'. The biennial cultivars flower in the spring after overwintering. |
| Godetia | 28-32 | 4 | 4-4.5 | |
| Gypsophila elegans | 40-45 | 3-4 | 3-4 | |
| Larkspur | 35-50 | 4 | 3.5 | Exposure to warm temperatures in the plug tray causes plants to prematurely bolt. If this happens, toss out the plants and start again. |
| Limonium (annual Statice) | 40-45 | 4-4.5 | 3.5-4 | |
| Limonium caspia | 63-68 | 6 | 6.5-7 | |
| Limonium latifolia (P) | 56-60 | Requires 2 years | | |
| Limonium perezii (TP) | 45-50 | 5 | 5-6.5 | |
| Limonium suworowii | 40-45 | 5 | 3-3.5 | |
| Limonium tatarica (P) | 63-70 | Requires 2 years | | |
| Lisianthus* | 98-110 | 4.5-6 | 5.5-6 | |
| Pepper, Friesdorf | 40-50 | 5 | 6 | |
| Scabiosa | 35-40 | 4 | 4.5-5.5 | S. stellata and S. atropurpurea flower relatively well under cool conditions. Perennial forms will flower more freely in the second year. |
| Snapdragon* | 30-42 | **3/summer, 5-6/winter | 3.5-4.5 | |

(P) Perennial in Zone 5

(TP) Plants are tender and may not survive a cold winter

* Based on a 288 or 375 plug tray

** 3/summer, 5-6 winter - plant takes 3 months to flower in summer conditions, 5-6 months to flower during the winter.

GERMINATION

More Times and Temperatures

With costs escalating, good germination can make a big difference in a plug operation's profit line. This chart is a guide to recommends temperature and days needed to advance selected plug crops from Stage 1 through Stage 4.

| | Stage 1 | Stage 2 | Stage 3 | Stage 4 |
|-------------------|---------|---------|---------|---------|
| Ageratum | | | | |
| Temperature | 75-78°F | 72-75°F | 65-68°F | 65°F |
| No. Days | 2-3 | 7 | 7-14 | 7 |
| Cover Seed? | No | | | |
| Alyssum | | | | |
| Temperature | 75-78°F | 70-72°F | 65-68°F | 65°F |
| No. Days | 2-5 | 7 | 7 | 7 |
| Cover Seed? | No | | | |
| Celosia | | | | |
| Temperature | 75°F | 72-75°F | 65-70°F | 65-68°F |
| No. Days | 4-5 | 7 | 14 | 7 |
| Cover Seed? | Yes | | | |
| Cyclamen | | | | |
| Temperature | 60°F | 55°F | 55°F | 55-60°F |
| No. Days | 28-35 | | | |
| Cover Seed? | Yes | | | |
| Dianthus | | | | |
| Temperature | 70-75°F | 70-75°F | 65-70°F | 65-68°F |
| No. Days | 3-5 | 7 | 14 | 7-14 |
| Cover Seed? | Yes | | | |
| Lobelia | | | | |
| Temperature | 75-80°F | 70°F | 65-68°F | 65°F |
| No. Days | 3-5 | 7 | 7-14 | 7-14 |
| Cover Seed? | No | | | |
| Nicotiana | | | | |
| Temperature | 75°F | 65-70°F | 65-68°F | 65-68°F |
| No. Days | 5-10 | 7 | 7-14 | 7-14 |
| Cover Seed? | No | | | |
| Primula | | | | |
| Temperature | 60-65°F | 60-65°F | 60-65°F | 60-65°F |
| No. Days | 21-28 | 14-21 | 14-21 | 14-21 |
| Cover Seed? | No | | | |
| Snapdragon | | | | |
| Temperature | 70-75°F | 65-70°F | 65-68°F | 65°F |
| No. Days | 5-8 | 14 | 14 | 7-14 |
| Cover Seed? | No | | | |

GROWTH MEDIA
Making Media Work for You
 (Plug media suppliers and what they offer)

| Company & Name of Mix | Main Ingredients | Additives | Custom Blend | Size Available |
|---|--|--|-------------------|---|
| Agro-Dynamics Grodon Granulated Rockwool | Rockwool | Water Absorbent, Water Repellent | No | 10-cu. ft. bale |
| ASB Greenworld Inc. ASB-Professional Seedling & Plug Mix | Canadian Sphagnum, Peat Moss, Perlite Vermiculite | Starter Charge, Non-chemical Wetting Agent | No | 3-cu. ft. bag |
| Ball Seed Co. Ball Peat-Lite | 60% Peat, 40% Vermiculite | Wetting Agent | Yes | 4-cu. ft. bag |
| Blackmore Co. Inc. Greenway Perlite Greenway Ag Greenway Ag 18% | Peat, Perlite, Verm. Peat, Perlite, Verm. Peat, Perlite, Verm. | No Wetting Agent Wetting Agent | Yes Yes Yes | 4-cu. ft. bag 4-cu. ft. bag 4-cu. ft. bag |
| Conrad Fafard Inc. Germinating Mix (Superfine) | Peat Moss, Perlite Vermiculite | Lime, Nutrient Charge, Wetting Agent | Yes | 3-cu. ft. 60-cu. ft. |
| Fisons Horticulture Inc. Mix No. 5, LP5 | Canadian Sphagnum Peat, Fine Perlite | Dolomitic Lime, Wetting Agent | Yes | 3-cu. ft. bag 4-cu. ft. bale 50-cu. ft. mini- bulk 60-cu. ft. mini- bulk |
| Grace-Sierra Horticultural Products Co. Metro-Mix® Plug Mix | Special Plug Grade Peat, Vermiculite | Starter Nutrient Charge, Wetting Agent | Yes | 3-cu. ft. bag 4-cu. ft. 60-cu. ft. mini- bulk |
| Redi-Earth® Peat-Lite Mix | Special Plug Grade Peat, Vermiculite | Starter Nutrient Charge, Wetting Agent | Yes | 3-cu. ft. bag 4-cu. ft. 60-cu. ft. mini- bulk |
| Terra-Lite® Plug Mix | Special Plug Grade Peat, Vermiculite | Starter Nutrient Charge, Wetting Agent | Yes | 3-cu. ft. bag 4-cu. ft. 60-cu. ft. mini- bulk |
| Hyde Park Products Inc. Control Gro No. 3 | Fertilizer, Nutrients, Perlite, Sphagnum Peat Moss, Vermiculite | Wetting Agent | Yes | 4-cu. ft. bag |
| Jiffy Products of America Inc. Jiffy-Mix | Peat Moss, Vermiculite, Magamp | Wetting Agent | Yes | 4-cu. ft. bag |

Growth Media Continued.

| | | | | |
|---|---|---|-----|---------------------------------|
| Jiffy-Mix Plus | Peat Moss, Vermiculite, Magamp | Wetting Agent | Yes | 4-cu. ft. bag |
| J-M Trading Corp. Plug Mix | Brick Cut Peat Moss, Perlite, Vermiculite | Wetting Agent | No | 4-cu. ft. |
| Seedling Mix (have to add Vermiculite and Perlite) | Brick Cut Peat Moss | Wetting Agent | No | 4-cu. ft. |
| Michigan Peat Co. Baccto Seedling/ Propagating Mix | Horticultural Sphagnum Base | Wetting Agent | Yes | 2-cu. ft. bag |
| Pargro Ltd. Rockwool | Rockwool | No | No | 4-cu. ft. bale |
| Premier Brands Inc. Pro-Mix "PGX" | Sphagnum Peat Moss, Vermiculite, Macronutrients, Micronutrients, Dolomitic Limestone, Calcitic Limestone | Wetting Agent | No | 3-cu. ft. bag 3-cu. ft. bale |
| Sogevex Plug & Germinating Mix | Sphagnum Peat Moss, Vermiculite, Macronutrients, Micronutrients, Dolomitic Limestone, Calcitic Limestone | Wetting Agent | No | 3-cu. ft. bag 4-cu. ft. bale |
| Southern Importers Inc. SI-1 Professional Growers Mix | Canadian Sphagnum Peat Moss, Dolo- mitic Limestone, Perlite, Vermicu- lite | Micro Max Nutrients Aqua-Gro Wetting Agent | Yes | 3-cu. ft. bag 4-cu. ft. bale |

