

Perennial Germination Requirements

| Plant | 128 plug WTF # | 288 plug WTF # | Overtart Percent | Germ Temp | 128 plug SPC ^ | 288 plug SPC ^ | Cover |
|---|-------------------|-------------------|---------------------|--------------|-------------------|-------------------|-------|
| <i>Achillea filipendulina, millefolium, ptarmica, tomentosa</i> | 8 | 6 | 10 | 70-75 | 3 | 3 | No |
| <i>Agastache rugosa, rupestris</i> | 7 | 5 | 10 | 70-75 | 2 | 2 | No |
| <i>Alcea ficifolia, rosea</i> * | 4 | 4 | 10-100 | 70-75 | 2 | 1.5 | Yes |
| <i>Alchemilla mollis</i> | 10 | 8 | 20-35 | 70-75 | 3 | 2 | No |
| <i>Alyssum montanum</i> | 8 | 6 | 10 | 70-75 | 4 | 4 | No |
| <i>Anacyclus pyrethrum</i> | 8 | 6 | 10 | 70-75 | 3 | 3 | No |
| <i>Anaphalis margaritacea</i> | 9 | 7 | 10 | 70-75 | 3 | 3 | No |
| <i>Anchusa capensis</i> | 7 | 6 | 30 | 70-75 | 2 | 2 | Yes |
| <i>Anemone hupehensis, multifida, sylvestris</i> * | 12 | 10 | 10-50 | 60-65 | 2 | 2 | Yes |
| <i>Anthemis tinctoria</i> | 8 | 7 | 10 | 70-75 | 3 | 3 | No |
| <i>Aquilegia alpina, hybrida, vulgaris</i> | 9 | 7 | 10-100 | 70-75 | 3 | 2 | Yes |
| <i>Aquilegia buergeriana, viridiflora</i> | 9 | 7 | 10-25 | 70-75 | 2 | 1.1 | Yes |
| <i>Aquilegia canadensis</i> | 9 | 7 | 10-100 | 70-75 | 2 | 2 | Yes |
| <i>Aquilegia flabellata</i> | 9 | 7 | 10 | 70-75 | 2 | 1-2 | Yes |
| <i>Arabis blepharophylla, caucasica</i> | 8 | 6 | 10 | 70-75 | 4 | 3 | No |
| <i>Arenaria montana</i> | 8 | 6 | 10 | 60-65 | 5 | 5 | Yes † |
| <i>Armeria alpina, hybrida, latifolia, maritima</i> | 10 | 8 | 10 | 60-65 | 3 | 2 | Yes † |
| <i>Armeria pseudarmeria</i> | 7 | 6 | 10 | 60-65 | 3 | 2 | Yes † |
| <i>Asclepias curassavica, incarnata, tuberosa</i> | 8 | 6 | 10-30 | 70-75 | 2 | 1 | Yes |
| <i>Aster alpinus, novae angliae, novi-belgii, tongolensis</i> | 8 | 6 | 10-25 | 70-75 | 3 | 3 | No |
| <i>Astilbe arendsii</i> * | 11 | 10 | 10 | 80-85 | 5 | 4 | No |
| <i>Astilbe chinensis</i> ♂, <i>taquetii</i> * | 11 | 10 | 10-30 | 80-85 | 5 | 4 | No |
| <i>Aubrieta hybrida</i> | 8 | 6 | 10-30 | 70-75 | 4 | 3 | No |
| <i>Aurinia saxatilis</i> | 8 | 6 | 10 | 70-75 | 4 | 3 | No |
| <i>Baptisia australis</i> | 9 | 7 | 25 | 60-65 | 1 | 1 | Yes † |
| <i>Bellis perennis</i> | 7 | 5 | 10 | 70-75 | 4 | 2 | No |
| <i>Bergenia cordifolia, purpurascens</i> | 10 | 9 | 10 | 80-85 | 3 | 3 | No |

| Plant | 128 plug WTF # | 288 plug WTF # | Overtart Percent | Germ Temp | 128 plug SPC ^ | 288 plug SPC ^ | Cover |
|---|-------------------|-------------------|---------------------|--------------|-------------------|-------------------|-------|
| <i>Boltonia asteroides</i> | 8 | 6 | 10 | 70-75 | 2 | 2 | No |
| <i>Buddleia davidii</i> | 10 | 8 | 15-30 | 70-75 | 4 | 2 | No |
| <i>Campanula carpatica</i> * | 11 @@ | 10 @@ | 20-30 | 70-75 | 5 | 4 | No |
| <i>Campanula cochlearifolia</i> * | 11 | 9 | 30 | 70-75 | 5 | 4 | No |
| <i>Campanula glomerata, lactiflora, rotundifolia</i> * | 9 | 7 | 10-15 | 70-75 | 5 | 4 | No |
| <i>Campanula isophylla</i> | 11 | 9 | 10 | 70-75 | 4 | 4 | No |
| <i>Campanula medium</i> * | 9 | 7 | 10-25 | 70-75 | 1 | 2 | No |
| <i>Campanula persicifolia</i> | 11 @@ | 10 @@ | 30 | 70-75 | 5 | 4 | No |
| <i>Campanula poscharskyana</i> * | 14 | 12 | 100 | 70-75 | 5 | 4 | No |
| <i>Catananche caerulea</i> | 9 | 7 | 10 | 70-75 | 2 | 2 | Yes |
| <i>Centaurea dealbata, macrocephala, montana, nigra</i> | 8 | 6 | 50 | 70-75 | 2 | 2 | Yes |
| <i>Centranthus ruber</i> | 8 | 6 | 10 | 60-65 | 3 | 3 | No |
| <i>Cerastium tomentosum</i> | 8 | 6 | 10 | 70-75 | 4 | 4 | Yes |
| <i>Cheiranthus</i> | 6 | 5 | 10-25 | 70-75 | 2 | 1.2 | No |
| <i>Chelone obliqua</i> | 8 | 6 | 10 | 70-75 | 3 | 3 | No |
| <i>Coreopsis grandiflora</i> * | 9 | 7 | 10-50 | 80-85 | 3 | 2 | No |
| <i>Coronilla varia</i> | 7 | 6 | 50 | 60-65 | 2 | 2 | Yes |
| <i>Cymbalaria muralis</i> | 8 | 6 | 10 | 70-75 | 4 | 3 | No |
| <i>Delosperma cooperii</i> | 9 | 7 | 20 | 70-75 | 4 | 4 | No |
| <i>Delphinium belladonna</i> * | 8 | 6 | 10-30 | 60-65 | 2.5 | 2.5 | Yes |
| <i>Delphinium elatum (F1 hybrid varieties)</i> | 8 | 6 | 25 | 60-65 | 1 | 1 | Yes |
| <i>Delphinium elatum</i> * | 8 | 6 | 30 | 60-65 | 2.5 | 2 | Yes |
| <i>Delphinium grandiflorum</i> * | 8 | 6 | 10-20 | 60-65 | 3 | 2 | Yes |
| <i>Delphinium nudicaule</i> * | 8 | 6 | 10 | 60-65 | 3 | 3 | Yes |
| <i>Dianthus amurensis</i> | 7 | 6 | 10 | 70-75 | 2 | 2 | No |
| <i>Dianthus barbatus</i> | 8 | 6 | 10 | 70-75 | 2-3 | 2-3 | No |
| <i>Dianthus carophyllus</i> | 8 | 6 | 10-20 | 70-75 | 2 | 2 | No |
| <i>Dianthus deltoides</i> | 8 | 6 | 10-25 | 70-75 | 3 | 3 | No |
| <i>Dianthus knappii</i> | 7 | 6 | 10 | 70-75 | 2 | 2 | No |
| <i>Dianthus x allwoodii, gratianopolitanus, plumarius</i> | 8 | 6 | 10-35 | 70-75 | 2 | 2 | No |
| <i>Digitalis ferruginea, grandiflora, mertonensis, thapsi</i> | 8 | 6 | 10-30 | 70-75 | 4 | 3 | No |
| <i>Digitalis parviflora, purpurea</i> | 7 | 5 | 10 | 70-75 | 4 | 3 | No |
| <i>Doronicum orientale</i> | 8 @@ | 7 @@ | 25 | 80-85 | 3 | 3 | No |

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|--|-------------------|-------------------|---------------------|--------------|-------------------|-------------------|-------|
| <i>Echinacea pallida, paraoxa, purpurea, tenesseeensis</i> | 8 | 6 | 10-30 | 70-75 | 2 | 2 | Yes |
| <i>Echinops bannaticus, ritro</i> | 8 | 6 | 20 | 70-75 | 2 | 2 | Yes |
| <i>Erigeron glaucus, speciosus</i> | 9 | 7 | 10-100 | 70-75 | 2 | 2 | No |
| <i>Erysimum suffruticosum, perovskianum</i> | 7 | 5 | 10 | 70-75 | 3 | 2 | No |
| <i>Eucalyptus cinerea</i> | 8 | 6 | 10 | 70-75 | 2 | 2 | Yes |
| <i>Euphorbia myrsinites, polychroma *</i> | 8 | 6 | 50 | 70-75 | 3 | 3 | Yes |
| <i>Gaillardia grandiflora *</i> | 8 | 6 | 10-50 | 70-75 | 2 | 1.5 | Yes |
| <i>Gazania linearis</i> | 8 | 6 | 25 | 70-75 | 2 | 1.2 | Yes |
| <i>Geum chiloense</i> | 8 | 6 | 10 | 70-75 | 3 | 2 | No |
| <i>Gypsophila pacifica, paniculata, repens</i> | 8 | 6 | 10 | 70-75 | 4 | 4 | No |
| <i>Helenium autumnale</i> | 8 | 6 | 10 | 70-75 | 2 | 2 | No |
| <i>Helenium hoopesii</i> | 11 | 9 | 10 | 70-75 | 2 | 2 | No |
| <i>Helianthemum nummularium</i> | 9 | 7 | 10 | 70-75 | 6 | 6 | Yes |
| <i>Heliopsis helianthoides</i> | 8 | 7 | 10 | 70-75 | 2 | 2 | Yes |
| <i>Hesperis matronalis</i> | 8 | 6 | 10-30 | 70-75 | 2 | 2 | No |
| <i>Heuchera americana, micrantha, sanguinea</i> | 11 | 9 | 10-15 | 80-85 | 5 | 4 | No |
| <i>Hibiscus moscheutos, x hybrida</i> | 5 | 4 | 10-100 | 70-75 | 1 | 1 | Yes |
| <i>Hypericum calycinum *</i> | 11 | 10 | 50 | 80-85 | 3 | 2 | No |
| <i>Hypericum perforatum ♂, polyphyllum</i> | 10 | 8 | 30 | 70-75 | 3 | 2 | No |
| <i>Iberis sempervirens</i> | 8 | 6 | 20 | 60-65 | 4 | 3 | Yes † |
| <i>Kniphofia uvaria</i> | 10 | 8 | 10-30 | 70-75 | 2 | 2 | Yes |
| <i>Lathyrus latifolia</i> | 8 | 7 | 10 | 70-75 | 2 | 1 | Yes |
| <i>Lavandula angustifolia</i> | 11 | 9 | 10-15 | 60-65 | 3 | 3 | Yes † |
| <i>Leontopodium alpinum</i> | 10 | 8 | 10 | 70-75 | 4 | 3 | No |
| <i>Leucanthemum superbum</i> | 8 | 6 | 10-25 | 70-75 | 3 | 2 | No |
| <i>Leucanthemum vulgare</i> | 8 | 6 | 10 | 70-75 | 2 | 2 | No |
| <i>Liatris pycnostachya, spicata *</i> | 10 | 8 | 30-50 | 70-75 | 4 | 3 | Yes |
| <i>Limonium latifolium, perezii, tartaricum</i> | 10 | 8 | 10-30 | 70-75 | 3 | 2 | No |
| <i>Linaria purpurea</i> | 9 | 7 | 10 | 70-75 | 4 | 3 | No |
| <i>Linum perenne</i> | 8 | 6 | 10 | 70-75 | 4 | 4 | No |
| <i>Lobelia cardinalis ♂</i> | 10 | 8 | 50 | 80-85 | 5 | 3 | No |
| <i>Lobelia siphilitica ♂, speciosa, x hybrida</i> | 10 | 8 | 10 | 70-75 | 5 | 3 | No |
| <i>Lunaria annua</i> | 7 | 5 | 10-50 | 70-75 | 2 | 1 | Yes |

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| <i>Lupinus x hybrida</i> | 5 | 4 | 10-25 | 70-75 | 2 | 1 | Yes |
| <i>Lychnis alpina, coronaria, flos-jovis, viscaria, x arkwrightii</i> | 8 | 6 | 10 | 70-75 | 3 | 3 | No |
| <i>Lychnis chalcedonica</i> | 7 | 6 | 10 | 70-75 | 3 | 3 | No |
| <i>Macleaya cordata</i> ♂ | 9 | 8 | 10 | 70-75 | 2 | 2 | No |
| <i>Malva moschata, sylvestris</i> | 6 | 4 | 10-50 | 70-75 | 2 | 2 | Yes |
| <i>Monarda didyma, fistulosa</i> ♂ | 7 | 5 | 10 | 70-75 | 3 | 3 | No |
| <i>Myosotis palustris</i> ♂♂, <i>sylvatica</i> ♂♂ | 7 | 5 | 10 | 70-75 | 3 | 3 | No |
| <i>Nepeta cataria</i> ♂ | 6 | 5 | 10-100 | 70-75 | 3 | 3 | No |
| <i>Nepeta mussinii</i> | 6 | 5 | 10 | 70-75 | 3 | 3 | No |
| <i>Oenothera fruticosa, speciosa</i> | 9 | 7 | 10 | 60-65 | 3 | 2 | Yes † |
| <i>Oenothera missouriensis</i> | 9 | 7 | 40 | 70-75 | 3 | 2 | Yes † |
| <i>Papaver alpinum, nudicaule</i> | 10 | 8 | 10-20 | 60-65 | 2 | 2 | Yes † |
| <i>Papaver orientale</i> | 10 | 8 | 10 | 70-75 | 2 | 2 | Yes † |
| <i>Penstemon barbatus, hartwegii</i> | 7 | 5 | 10 | 70-75 | 4 | 4 | No |
| <i>Penstemon heterophyllus</i> | 8 | 6 | 10-25 | 70-75 | 4 | 4 | No |
| <i>Penstemon smallii</i> ♂ | 8 | 5 | 10 | 70-75 | 4 | 2 | No |
| <i>Physalis alkekengii</i> ♂ | 7 | 5 | 10 | 70-75 | 3 | 3 | No |
| <i>Physostegia virginiana</i> | 9 | 7 | 10-50 | 70-75 | 4 | 2.5 | No |
| <i>Platycodon grandiflorus</i> | 8 | 6 | 10 | 70-75 | 3 | 2 | No |
| <i>Plumbago auriculata</i> | 8 | 6 | 25 | 70-75 | 1 | 1 | No |
| <i>Polemonium boreale, caeruleum, reptans, viscosum</i> | 9 | 7 | 10-25 | 70-75 | 3 | 3 | No |
| <i>Potentilla fragiformis, nepaliensis, thurberi</i> | 8 | 6 | 100 | 70-75 | 3 | 3 | No |
| <i>Primula denticulata</i> | 11 | 9 | 10 | 60-65 | 2 | 1 | Yes † |
| <i>Primula polyanthus, x hybrida</i> | 10 | 8 | 10-100 | 60-65 | 2 | 1 | Yes † |
| <i>Primula vialii</i> | 12 | 10 | 10 | 60-65 | 2 | 1 | Yes † |
| <i>Prunella grandiflora</i> | 8 | 6 | 10 | 70-75 | 2 | 2 | No |
| <i>Pulsatilla vulgaris</i> * | 12 | 10 | 10 | 60-65 | 2 | 2 | Yes |
| <i>Ratibida pinnata</i> | 7 | 6 | 25 | 70-75 | 2 | 2 | No |
| <i>Rehmannia angilata</i> | 8 | 6 | 30 | 70-75 | 4 | 4 | No |
| <i>Rudbeckia fulgida</i> ♂ | 9 | 7 | 10-40 | 80-85 | 3 | 2 | No |
| <i>Rudbeckia subtomentosa, triloba</i> | 9 | 7 | 10-50 | 70-75 | 3 | 2 | No |
| <i>Rumex sanguineus</i> | 8 | 6 | 10 | 70-75 | 2 | 2 | No |
| <i>Sagina subulata</i> | 7 | 5 | 10 | 70-75 | 5 | 5 | No |

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|---|-------------------|-------------------|---------------------|--------------|-------------------|-------------------|-------|
| <i>Salvia argentea</i> | 6 @ | 4 @ | 25 | 70-75 | 1 | 1 | No |
| <i>Salvia x sylvestris</i> | 9 | 7 | 10-20 | 70-75 | 3 | 2 | No |
| <i>Santolina chamaecyparissus</i> | 10 | 8 | 10 | 70-75 | 3 | 3 | No |
| <i>Saponaria ocymoides</i> | 8 | 7 | 10 | 60-65 | 4 | 4 | No |
| <i>Saxifraga arendsii</i> | 13 @@ | 13 @@ | 15 | 80-85 | 5 | 4 | Yes † |
| <i>Scabiosa caucasica</i> * | 7 | 6 | 30-100 | 70-75 | 2 | 1.5 | Yes |
| <i>Scabiosa columbaria, ochroleuca</i> * | 8 | 6 | 30-100 | 70-75 | 2 | 1.5 | Yes |
| <i>Scutellaria alpina</i> | 9 | 7 | 100 | 60-65 | 2 | 2 | No |
| <i>Sedum acre, kamtschaticum, spurium</i> | 9 | 7 | 10 | 70-75 | 5 | 4 | No |
| <i>Sempervivum</i> * | 13 | 12 | 30 | 60-65 | 4 | 3 | No |
| <i>Sidalcea malviflora, x hybrida</i> | 8 | 6 | 50 | 60-65 | 2 | 2 | Yes † |
| <i>Silene cchafta</i> | 8 | 6 | 10 | 70-75 | 3 | 2 | No |
| <i>Silene orientalis</i> | 8 | 6 | 10 | 70-75 | 2 | 2 | No |
| <i>Sisyrinchium californicum</i> | 7 | 5 | 25 | 70-75 | 2 | 2 | No |
| <i>Solidago canadensis, rigida</i> | 9 | 7 | 10-100 | 70-75 | 3 | 2 | No |
| <i>Stachys byzantina</i> | 6 | 4 | 30 | 80-85 | 3 | 2 | No |
| <i>Stokesia laevis</i> | 8 | 7 | 10 | 70-75 | 2 | 2 | Yes |
| <i>Tanacetum coccineum</i> | 9 | 7 | 10-25 | 70-75 | 3 | 2 | No |
| <i>Tanacetum niveum</i> | 8 | 6 | 10 | 70-75 | 3 | 3 | No |
| <i>Tanacetum parthenium</i> | 7 | 6 | 10 | 70-75 | 4 | 3 | No |
| <i>Teucrium chamaedrys</i> | 11 | 9 | 20 | 70-75 | 2 | 2 | No |
| <i>Thalictrum aquilegifolium</i> | 10 | 8 | 25 | 70-75 | 3 | 2 | Yes |
| <i>Verbascum chaixii</i> | 7 | 5 | 10 | 70-75 | 3 | 3 | No |
| <i>Verbascum x hybrida</i> | 7 | 5 | 25 | 70-75 | 1 | 2 | No |
| <i>Verbena bonariensis</i> | 8 | 6 | 50 | 70-75 | 2 | 2 | Yes |
| <i>Verbena canadensis</i> | 8 | 7 | 50 | 70-75 | 2 | 3 | Yes |
| <i>Veronica austriaca, gentianoides</i> | 7 | 5 | 10 | 70-75 | 3 | 3 | No |
| <i>Veronica incana, repens, spicata</i> | 7 | 5 | 10 | 70-75 | 3 | 3 | No |
| <i>Veronica subsessilis</i> | 7 | 5 | 10 | 70-75 | 2 | 2 | No |
| <i>Viola labradorica</i> * | 8 | 7 | 100 | 60-65 | 2 | 2 | Yes |
| <i>Viola tricolor</i> | 6 @ | 6 @ | 5-25 | 60-65 | 3 | 1-2 | Yes |

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|-------|-------------------|-------------------|---------------------|--------------|-------------------|-------------------|-------|
|-------|-------------------|-------------------|---------------------|--------------|-------------------|-------------------|-------|

@ = Reduce plug weeks to finish (WTF) by 1 week for summer production
 @@ = Increase plug weeks to finish (WTF) by 1 week for summer production
 † = Light media cover applied after germination
 * = some species or cultivars regularly have poor germination and/or vigor
 # = weeks to finish (WTF) for plug production
 & = Light beneficial or required for germination
 && = Darkness beneficial or required for germination
 ^ = Seeds per cell (SPC) to sow