

Harvested Seed

Germination Requirements



Harvested seed – Germination requirements

Successful seed sowing

The Seed Team at Wisley thank you for your order. We have enjoyed collecting seed for the seedlist and hope that the plants you grow provide you with many years of pleasure.

General guidelines

Specific requirements are detailed for each genus after these general guidelines.

Getting ready

Before sowing the seed prepare all the pots. Use clean or new pots to reduce the risk of disease. A proprietary seed-sowing compost usually provides excellent results. Mix up the compost to break up large lumps and to aerate it. Overfill the pot, tap the base on a surface to settle the compost, score off any excess and then lightly firm to make a smooth level surface. Leave a gap from the top of the pot depending on the size of the seed. For very small seed such as Begonia leave a small gap of about 2mm. For larger seed such as Matthiola and Lupinus leave a larger gap of between 5–10mm. Once all the pots are filled, soak them with an upturned fine rose attached to a watering can and allow excess water to drain away.

Sowing seed

- **Fine seed**
Mix seed with a small quantity of fine dry sand and put in the palm of your hand. Holding your hand above the pot, gently tap your hand so the seed trickles out of your hand and is distributed evenly over the compost.
- **Medium seed**
You can sow seed directly from the packet, from a piece of folded paper or put some seed in the palm of your hand, pick up a pinch of seed and sprinkle the seed evenly over the compost.
- **Large seed**
Place each seed on the compost, sowing up to five seeds in a 9cm pot depending on seed size.

The exception is seed which resents root disturbance (where indicated in the Notes section of the germination table). You should sow these into individual pots or modules and not transplant them at the seedling stage.

Sow seed thinly and evenly to give each seed the air, light and moisture it needs and to minimise the risk of disease (Search 'damping off/RHS Garden' at www.rhs.org.uk/advice).

Covering seed

- **Fine seed**
There is no need to cover very small fine seed such as Begonia, or seed that requires light for germination.
- **Seed germinating within 30 days**
Spring is the best time of year for most seed that germinates within 30 days. Cover seed with a layer of vermiculite to the lip of the pot. Cover to a depth of between 2–10mm depending on seed size. If using compost instead of vermiculite reduce the covering depth by half.
- **Seed germinating in 60 days or longer**
Seed should be covered with a 6mm layer using coarse grit instead of vermiculite.

Aftercare

Place pots in good light. A greenhouse or a cold frame is ideal and using a heated propagator in a greenhouse will speed up germination.

Overcoming dormancy

Some seeds have factors that delay germination. See Notes in germination table for details. The main barriers delaying germination are: hard or watertight seed coats; chemical inhibitors; immature embryos and cold temperature requirements. Some seeds have more than one barrier to germination that have to be overcome in a certain order. For example the hard seed coat must be penetrated to allow water to enter the seed, releasing inhibitory chemicals. This then initiates the seed to respond to a period of chilling.

- **Delayed germination**

Some seed may take over a year to germinate because they need more than one chilling period or treatment to break the dormancy or barriers preventing germination

- **Cold moist stratification**

Sow seed and place outside in an open cold frame or place into damp compost and store in the fridge for up to 12 weeks

- **Chipping or softening seed coats**

Hard seed coats may be softened by soaking in hot or cold water, or 'chipped' (nicked) with a sharp knife

- **Warm stratification**

This may be necessary either to break down the hard seed coat or to mature the embryo. Put the seed in damp compost and place in the airing cupboard for up to 12 weeks before sowing

Pricking out

Germinated seedlings need good quality light to avoid becoming weak and spindly. To thin out the seedlings prick them out when the first true leaves have emerged. Prepare pots using a general potting compost, creating an even, firm surface as before. Handle seedlings gently by the leaves. Use a pencil or dibber to tease out the seedlings and to make a hole in the newly prepared pot to put the seedling roots into. Fully moisten the compost carefully using an upturned fine rose on a watering can. Place the pots in good quality light.

Further information

For further advice on seed sowing we recommend the RHS publication *Propagating Plants* by Alan Toogood, Royal Horticultural Society, May 2006 (ISBN 9781405315258)

Or look at the RHS advice pages on seed sowing at www.rhs.org.uk/advice/Seed:sowing indoors

Genus	Temperature	Time to germinate	Notes
<i>Abutilon</i>	16°C–21°C (61°F–70°F)	30–90 days	Lightly cover seed and use well drained compost
<i>Aconitum</i>	10°C–13°C (50°F–55°F)	up to 1 year	Leave seeds uncovered when sown Requires cold moist stratification
<i>Actaea</i>	13°C–16°C (55°F–61°F)	more than 90 days	Requires cold moist stratification
<i>Adenophora</i>	10°C–13°C (50°F–55°F)	30–90 days	Species resents root disturbance – sow directly into suitable container
<i>Agapanthus</i>	16°C–18°C (61°F–64°F)	more than 90 days	Lightly cover seeds
<i>Agastache</i>	10°C–16°C (50°F–61°F)	30–90 days	Sow in spring. Lightly cover seeds
<i>Agrostemma</i>	13°C–20°C (55°F–68°F)	30–90 days	Sow 5mm deep
<i>Alcea</i>	16°C–21°C (61°F–70°F)	up to 90 days	Leave seeds uncovered when sown
<i>Alchemilla</i>	16°C–18°C (61°F–64°F)	30–90 days	Lightly cover seeds
<i>Allium</i>	13°C–16°C (55°F–61°F)	up to 1 year	Leave seeds uncovered when sown Requires cold moist stratification Keep moist and dark
<i>Ammi</i>	15°C (59°F)	7–21 days	Can be sown in Spring or Autumn into well drained compost.
<i>Ampelopsis</i>	10°C–13°C (50°F–55°F)	up to 90 days	Sow in Autumn Requires a period of cold moist stratification
<i>Amsonia</i>	13°C–16°C (55°F–61°F)	up to 90 days	Lightly cover seeds
<i>Anemanthele</i>	18°C–21°C (64°F–70°F)	30–90 days	Use well drained compost
<i>Anemone</i>	10°C–13°C (50°F–55°F)	up to 1 year	Sow in Autumn or Spring Requires a period of cold moist stratification (2–3 weeks) Lightly cover seeds
<i>Angelica</i>	10°C–13°C (50°F–55°F)	30–90 days	Lightly cover seeds
<i>Anthriscus</i>	10°C–13°C (50°F–55°F)	up to 30 days	Usually does best if sown in situ
<i>Antirrhinum</i>	13°C–16°C (55°F–61°F)	up to 30 days	Leave seeds uncovered when sown Requires light to germinate
<i>Armeria</i>	16°C–21°C (61°F–70°F)	30–90 days	Lightly cover seeds Keep moist and dark
<i>Aruncus</i>	13°C–18°C (55°F–64°F)	may take more than 1 year	Leave seeds uncovered when sown

Genus	Temperature	Time to germinate	Notes
<i>Asclepias</i>	16°C–18°C (61°F–64°F)	30–90 days	Cold stratify for 3 weeks Lightly cover seeds Requires light to germinate
<i>Asphodeline</i>	16°C–21°C (61°F–70°F)	30–90 days	Lightly cover seeds Species resents root disturbance – sow directly into suitable container
<i>Asphodelus</i>	16°C–21°C (61°F–70°F)	30–90 days	Lightly cover seeds Species resents root disturbance – sow directly into suitable container
<i>Astrantia</i>	13°C–18°C (55°F–64°F)	up to 1 year	Cold stratify for 4 weeks Leave seeds uncovered when sown Requires light to germinate
<i>Atriplex</i>	13°C–18°C (55°F–64°F)	up to 30 days	Requires light to germinate
<i>Baptisia</i>	18°C–21°C (64°F–70°F)	up to 30 days	Pre-soak in cold water
<i>Berkheya</i>	15°C–21°C (59°F–70°F)	more than 90 days	Lightly cover seeds Requires light to germinate
<i>Briza</i>	10°C–16°C (50°F–61°F)	30–90 days	Lightly cover seeds
<i>Bupleurum</i>	13°C–16°C (55°F–61°F)	up to 30 days	Sow in Spring Leave seeds uncovered when sown Warm stratify (18°C–22°C); Cold stratify (5°C–12°C); Warm stratify again
<i>Calamagrostis</i>	15°C–20°C (59°F–68°F)	up to 30 days	Lightly cover seeds
<i>Calendula</i>	13°C–18°C (55°F–64°F)	up to 30 days	Can be sown in situ in Spring or Autumn Sow to depth of 6mm
<i>Callicarpa</i>	13°C–18°C (55°F–64°F)	30–90 days	Lightly cover seeds
<i>Callistemon</i>	16°C–21°C (61°F–70°F)	more than 90 days	Leave seeds uncovered when sown
<i>Camassia</i>	10°C–16°C (50°F–61°F)	up to 90 days	Lightly cover seeds Requires a period of cold moist stratification
<i>Campanula</i>	16°C–21°C (61°F–70°F)	up to 90 days	Leave seeds uncovered when sown Requires light to germinate
<i>Campsis</i>	16°C–21°C (61°F–70°F)	up to 30 days	Sow in Spring Chilling may improve germination

Genus	Temperature	Time to germinate	Notes
<i>Cardiocrinum</i>	10°C–16°C (50°F–61°F)	up to 2 years	Requires a period of cold moist stratification and may need a second period of cold to break dormancy. Keep compost moist
<i>Carex</i>	10°C–16°C (50°F–61°F)	30–90 days	Lightly cover seeds
<i>Carpenteria</i>	16°C–21°C (61°F–70°F)	up to 90 days	Lightly cover seeds with sand Keep moist
<i>Carum</i>	16°C–18°C (61°F–64°F)	up to 90 days	Best sown in situ or in pots outside in spring Species resents root disturbance – sow directly into suitable container
<i>Catalpa</i>	16°C–21°C (61°F–70°F)	up to 30 days	Surface sow as light is needed for germination Good ventilation required to prevent damping off
<i>Cenolophium</i>	13°C–18°C (55°F–64°F)	up to 1 year	Leave seeds uncovered when sown Requires light to germinate
<i>Centaurea</i>	10°C–16°C (50°F–61°F)	up to 30 days	Sow in Spring and keep seeds in the dark by covering
<i>Centranthus</i>	15°C–20°C (59°F–68°F)	up to 30 days	Sow 2mm deep in Spring
<i>Cephalaria</i>	13°C–18°C (55°F–64°F)	up to 90 days	Sow 5mm deep in Spring
<i>Chelone</i>	13°C–16°C (55°F–61°F)	30–90 days	Lightly cover seeds Needs good drainage
<i>Cichorium</i>	10°C–16°C (50°F–61°F)	up to 30 days	Sow 3mm deep in Spring Can be sown in situ
<i>Cistus</i>	13°C–18°C (55°F–64°F)	up to 90 days	Lightly cover seeds
<i>Cleome</i>	18°C–24°C (64°F–75°F)	up to 30 days	Surface sow seeds Germination seems to improve with warm days and cooler nights
<i>Convallaria</i>	10°C–16°C (50°F–61°F)	up to 1 year	Lightly cover seeds May need two chilling periods to break double dormancy Requires a period of cold moist stratification
<i>Coreopsis</i>	12°C– 20°C (54°F–68°F)	up to 25 days	Surface sow as light is needed for germination
<i>Cornus</i>	13°C–18°C (55°F–64°F)	up to 1 year	Surface sow seeds Requires a period of cold moist stratification

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<i>Corydalis</i>	10°C–16°C (50°F–61°F)	up to 1 year	Cold stratify for 2 weeks Leave seeds uncovered when sown Requires light to germinate
<i>Cosmos</i>	16°C–21°C (61°F–70°F)	up to 30 days	Sow in Spring (April) Lightly cover seeds
<i>Cotinus</i>	10°C–16°C (50°F–61°F)	more than 90 days	Soak seeds in very hot water for 12 hours Requires a period of cold moist stratification
<i>Crocasmia</i>	16°C–18°C (61°F–64°F)	more than 90 days	Lightly cover seeds Species resents root disturbance – sow directly into suitable container Sow in Spring
<i>Crocus</i>	10°C–16°C (50°F–61°F)	up to 1 year	Species resents root disturbance – sow directly into suitable container Requires a period of cold moist stratification
<i>Cyclamen</i>	13°C–16°C (55°F–61°F)	up to 1 year	Pre-soak in cold water Requires a period of cold moist stratification and may need two chilling periods to break double dormancy Keep moist and dark
<i>Daphne</i>	10°C–16°C (50°F–61°F)	may take more than 1 year	Surface sow seeds in summer Warm stratify for 4 weeks; Cold stratify for 4 weeks
<i>Darmera</i>	16°C–21°C (61°F–70°F)	up to 30 days	Keep moist and dark
<i>Deinranthe</i>	18°C–21°C (64°F–70°F)	30–90 days	Leave seeds uncovered when sown
<i>Deschampsia</i>	10°C–16°C (50°F–61°F)	up to 30 days	Sow in early Spring or Autumn Lightly cover seeds
<i>Dianella</i>	12°C–15°C (54°F–59°F)	30–90 days	Lightly cover seeds Sow in Spring
<i>Dianthus</i>	16°C–18°C (61°F–64°F)	up to 90 days	Lightly cover seeds Needs good drainage
<i>Dicentra</i>	10°C–16°C (50°F–61°F)	up to 1 year	Cold stratify for 6 weeks Lightly cover seeds Chilling may improve germination
<i>Dierama</i>	16°C–18°C (61°F–64°F)	up to 1 year	Lightly cover seeds Requires light to germinate

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<i>Digitalis</i>	13°C–16°C (55°F–61°F)	30–90 days	Leave seeds uncovered when sown Requires light to germinate
<i>Eccremocarpus</i>	16°C–21°C (61°F–70°F)	up to 90 days	Lightly cover seeds
<i>Echinacea</i>	18°C–24°C (64°F–75°F)	30–90 days	Surface sow If seed does not germinate it may need a period of cold moist stratification for a few weeks
<i>Embothrium</i>	16°C–21°C (61°F–70°F)	up to 60 days	Sow thinly and lightly cover seeds
<i>Enkianthus</i>	13°C–16°C (55°F–61°F)	30–90 days	Requires a period of cold moist stratification
<i>Eranthis</i>	16°C–21°C (61°F–70°F)	up to 1 year	Requires a period of cold moist stratification
<i>Erigeron</i>	10°C–16°C (50°F–61°F)	up to 90 days	Leave seeds uncovered when sown
<i>Erodium</i>	10°C–16°C (50°F–61°F)	up to 90 days	Sow in Spring Lightly cover seeds
<i>Eryngium</i>	10°C–16°C (50°F–61°F)	up to 90 days	Sow in Autumn, covering very lightly Requires a period of cold moist stratification Germination can be slow and irregular, so pot on each seedling as emerges
<i>Eschscholzia</i>	16°C–18°C (61°F–64°F)	up to 90 days	Best sown direct in Spring as resents root disturbance
<i>Eucomis</i>	18°C–24°C (64°F–75°F)	up to 1 year	Sow 2mm deep in Spring, ideally in a propagator Germination can be slow and irregular
<i>Euphorbia</i>	15°C–18°C (58°F–64°F)	up to 90 days	Lightly cover seeds If seed does not germinate it may need a period of cold moist stratification for a few weeks. Germination may be slow and irregular
<i>Fatsia</i>	13°C–16°C (55°F–61°F)	up to 90 days	Lightly cover seeds
<i>Ferula</i>	16°C–21°C (61°F–70°F)	up to 30 days	Sow in Spring, lightly covering seeds
<i>Festuca</i>	16°C–21°C (61°F–70°F)	up to 30 days	Sow in Spring in well draining compost
<i>Foeniculum</i>	13°C–18°C (55°F–64°F)	up to 30 days	Keep moist and dark
<i>Francoa</i>	10°C–13°C (50°F–55°F)	up to 30 days	Leave seeds uncovered when sown
<i>Fritillaria</i>	13°C–18°C (55°F–64°F)	up to 1 year	Sow in Autumn Lightly cover seeds Requires a period of cold moist stratification

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<i>Galega</i>	16°C–21°C (61°F–70°F)	up to 30 days	Sow seeds in Spring, lightly covering seeds
<i>Galtonia</i>	18°C–24°C (64°F–75°F)	30–90 days	Lightly cover seeds
<i>Gaura</i>	13°C–16°C (55°F–61°F)	up to 30 days	Sow in Spring, lightly covering seeds Use well drained compost
<i>Gentiana</i>	10°C–13°C (50°F–55°F)	up to 1 year	Lightly cover seeds Requires a period of cold moist stratification
<i>Geranium</i>	10°C–13°C (50°F–55°F)	up to 90 days	Sow in Spring, lightly covering seeds If seed does not germinate it may need a period of cold moist stratification for a few weeks so leave outside over winter
<i>Geum</i>	13°C–18°C (55°F–64°F)	up to 90 days	Lightly cover seeds
<i>Gillenia</i>	15°C–18°C (59°F–64°F)	30–90 days	Requires a period of cold moist stratification
<i>Gladiolus</i>	10°C–16°C (50°F–61°F)	more than 90 days	Species resents root disturbance – sow directly into suitable container
<i>Glebionis</i>	16°C–21°C (61°F–70°F)	10–14 days	Can be sown either indoors in early Spring or direct sown slightly later
<i>Glycyrrhiza</i>	15°C–18°C (59°F–64°F)	30–90 days	Pre-soak in cold water for 1 day Sow in Spring
<i>Gypsophila</i>	13°C–18°C (55°F–64°F)	30–90 days	Lightly cover seeds
<i>Helianthus</i>	10°C–16°C (50°F–61°F)	up to 30 days	Can be sown in situ in the Spring
<i>Helleborus</i>	16°C–18°C (61°F–64°F)	up to 1 year	Sow in Autumn Fresher seed will germinate best. Needs period of cold stratification
<i>Hemerocallis</i>	16°C–21°C (61°F–70°F)	more than 90 days	Cold stratify for 6 weeks
<i>Hesperantha</i>	13°C–16°C (55°F–61°F)	up to 90 days	Lightly cover seeds Species resents root disturbance – sow directly into suitable container
<i>Hesperis</i>	18°C–21°C (64°F–70°F)	30–90 days	Leave seeds uncovered when sown Requires light to germinate
<i>Heuchera</i>	16°C–21°C (61°F–70°F)	up to 90 days	Leave seeds uncovered when sown Requires light to germinate
<i>Hosta</i>	10°C–16°C (50°F–61°F)	more than 90 days	Lightly cover seeds

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<i>Hydrangea</i>	13°C–16°C (55°F–61°F)	more than 90 days	Lightly cover seeds
<i>Inula</i>	16°C–21°C (61°F–70°F)	up to 90 days	Sow in Spring Lightly cover seeds
<i>Ipomoea</i>	18°C–24°C (64°F–75°F)	up to 90 days	Pre-soak in cold water; Chip seed Use well drained compost
<i>Iris</i>	13°C–18°C (55°F–64°F)	up to 1 year	Requires a period of cold moist stratification
<i>Kirengeshoma</i>	13°C–18°C (55°F–64°F)	up to 30 days	Keep moist and dark
<i>Knautia</i>	10°C–16°C (50°F–61°F)	30–90 days	Sow in Autumn, covering very lightly Requires a period of cold moist stratification
<i>Kniphofia</i>	16°C–21°C (61°F–70°F)	up to 60 days	Surface sow in Spring as light is needed for germination
<i>Kolkwitzia</i>	10°C–13°C (50°F–55°F)	30–90 days	Chilling may improve germination
<i>Lathyrus</i>	13°C–18°C (55°F–64°F)	30–90 days	Pre-soak in cold water or chip seed. Can be sown in Spring or Autumn
<i>Lavandula</i>	13°C–18°C (55°F–64°F)	up to 90 days	Lightly cover seeds Cold stratify for 4 weeks
<i>Lavatera</i>	18°C–21°C (64°F–70°F)	30–90 days	Lightly cover seeds
<i>Lepechinia</i>	18°C–24°C (64°F–75°F)	up to 90 days	Leave seeds uncovered when sown Use well drained compost
<i>Lewisia</i>	13°C–16°C (55°F–61°F)	Usually 1 month to germinate	Requires a period of cold, moist stratification Keep seeds in a cool, shaded area
<i>Libertia</i>	10°C–13°C (50°F–55°F)	may take more than 1 year	Species resents root disturbance – sow directly into suitable container Requires a period of cold moist stratification
<i>Lilium</i>	18°C–21°C (64°F–70°F)	may take more than 1 year	Surface sow and cover pot with lime-free grit Warm stratify for 4 weeks; Cold stratify for 12 weeks
<i>Limonium</i>	18°C–21°C (64°F–70°F)	up to 20 days	Sow in early Spring under cover or direct in late Spring Lightly cover seeds
<i>Linaria</i>	13°C–16°C (55°F–61°F)	30–90 days	Requires a period of cold moist stratification Lightly cover seeds as light is needed for germination
<i>Linum</i>	16°C–21°C (61°F–70°F)	30–90 days	Lightly cover seeds

Genus	Temperature	Time to germinate	Notes
<i>Liriodendron</i>	10°C–16°C (50°F–61°F)	more than 90 days	Requires a period of cold moist stratification
<i>Lobelia</i>	18°C–24°C (64°F–75°F)	up to 90 days	Leave seeds uncovered when sown Use well drained compost Requires light to germinate
<i>Lunaria</i>	16°C–21°C (61°F–70°F)	up to 90 days	Sow in Summer, covering seeds with 3mm compost Germination may be slow and irregular and seeds may need a period of cold, moist stratification
<i>Lupinus</i>	13°C–18°C (55°F–64°F)	up to 90 days	Soak seeds in hot water for 1–3 days before sowing. Alternatively chip seed Cover seeds with 5mm compost
<i>Lychnis</i>	16°C–21°C (61°F–70°F)	30–90 days	Cold stratify for 2 weeks Leave seeds uncovered when sown
<i>Lysimachia</i>	13°C–18°C (55°F–64°F)	up to 90 days	Leave seeds uncovered when sown
<i>Lythrum</i>	18°C–21°C (64°F–70°F)	up to 30 days	Lightly cover seeds
<i>Macleaya</i>	18°C–21°C (64°F–70°F)	up to 90 days	Sow in Spring or Autumn, lightly covering seeds Requires a period of cold moist stratification
<i>Maianthemum</i>	10°C–16°C (50°F–61°F)	up to 1 year	Lightly cover seeds Requires a period of cold moist stratification
<i>Matthiola</i>	13°C–21°C (55°F–70°F)	up to 30 days	Sow in Spring or Autumn, lightly covering seeds
<i>Meconopsis</i>	13°C–18°C (55°F–64°F)	up to 90 days	Leave seeds uncovered when sown Chilling may improve germination Requires damp conditions Requires a period of cold moist stratification
<i>Melica</i>	16°C–21°C (61°F–70°F)	up to 30 days	Sow in late Spring and lightly cover seeds with compost
<i>Miscanthus</i>	16°C–21°C (61°F–70°F)	up to 30 days	Sow in early Spring, lightly covering seeds as light can help with germination
<i>Molinia</i>	10°C–16°C (50°F–61°F)	up to 30 days	Sow in Spring
<i>Muscari</i>	10°C–16°C (50°F–61°F)	up to 1 year	Pre-soak in cold water Lightly cover seeds Species resents root disturbance – sow directly into suitable container Use well drained compost

Genus	Temperature	Time to germinate	Notes
<i>Myrrhis</i>	13°C–16°C (55°F–61°F)	up to 90 days	Sow in Autumn Requires a period of cold moist stratification
<i>Nepeta</i>	16°C–21°C (61°F–70°F)	up to 90 days	Lightly cover seeds
<i>Nicandra</i>	16°C–24°C (61°F–75°F)	30–90 days	Lightly cover seeds
<i>Nicotiana</i>	21°C–24°C (70°F–75°F)	up to 90 days	Leave seeds uncovered when sown Requires light to germinate
<i>Nigella</i>	13°C–18°C (55°F–64°F)	up to 90 days	Lightly cover seeds Annuals may be suitable for sowing outside
<i>Oenothera</i>	18°C–21°C (64°F–70°F)	30–90 days	Lightly cover seeds Keep moist and dark
<i>Onopordum</i>	13°C–18°C (55°F–64°F)	30–90 days	Species resents root disturbance – sow directly into suitable container
<i>Orlaya</i>	18°C–21°C (64°F–70°F)	30–90 days	Lightly cover seeds Germination can be erratic and seeds may need a period of cold moist stratification
<i>Paeonia</i>	13°C–16°C (55°F–61°F)	may take more than 1 year	Sow in Autumn Requires a period of cold stratification once germinated
<i>Panicum</i>	16°C–21°C (61°F–70°F)	may take up to 6 months	Sow in Spring, lightly covering seeds
<i>Papaver</i>	13°C–18°C (55°F–64°F)	up to 90 days	Leave seeds uncovered when sown
<i>Paradisea</i>	10°C–16°C (50°F–61°F)	up to 1 year	Leave seeds uncovered when sown Requires a period of cold moist stratification
<i>Patrinia</i>	10°C–16°C (50°F–61°F)	up to 30 days	Sow in Spring, lightly covering seeds
<i>Paulownia</i>	16°C–18°C (61°F–64°F)	up to 90 days	Leave seeds uncovered when sown Requires light to germinate
<i>Pennisetum</i>	18°C–21°C (64°F–70°F)	up to 30 days	Sow in Spring in well draining compost
<i>Penstemon</i>	13°C–18°C (55°F–64°F)	up to 90 days	Sow in Autumn as requires a period of cold moist stratification Leave seeds uncovered when sown as needs light to germinate
<i>Persicaria</i>	10°C–16°C (50°F–61°F)	up to 90 days	Sow in Autumn, lightly covering seeds Needs period of cold moist stratification

Genus	Temperature	Time to germinate	Notes
<i>Petromarula</i>	18°C–21°C (64°F–70°F)	up to 90 days	Sow in Spring Leave seeds uncovered when sown as needs light to germinate
<i>Phacelia</i>	10°C–16°C (50°F–61°F)	up to 30 days	Best results are from seed sown in situ Ensure seed is covered as needs dark to germinate
<i>Phlomis</i>	16°C–18°C (61°F–64°F)	up to 90 days	Lightly cover seeds
<i>Physalis</i>	21°C (70°F)	up to 30 days	Sow in Spring Surface sow as light is needed for germination
<i>Physocarpus</i>	10°C–16°C (50°F–61°F)	up to 30 days	Sow in Autumn Requires a period of cold moist stratification
<i>Physostegia</i>	15°C–18°C (59°F–64°F)	30–90 days	Sow in Spring
<i>Phytolacca</i>	18°C–21°C (64°F–70°F)	up to 60 days	Sow 3mm deep in Autumn Requires a period of cold moist stratification
<i>Platycodon</i>	18°C–21°C (64°F–70°F)	30–90 days	Leave seeds uncovered when sown Requires a period of cold moist stratification Requires light to germinate
<i>Polemonium</i>	18°C–21°C (64°F–70°F)	30–90 days	Lightly cover seeds
<i>Potentilla</i>	18°C–21°C (64°F–70°F)	30–90 days	Lightly cover seeds
<i>Primula</i>	13°C–16°C (55°F–61°F)	up to 90 days	Leave seeds uncovered when sown Requires a period of cold moist stratification
<i>Ptilostemon</i>	18°C–21°C (64°F–70°F)	up to 30 days	Sow 3mm deep in Autumn Requires a period of cold moist stratification
<i>Pulsatilla</i>	13°C–16°C (55°F–61°F)	up to 1 year	Lightly cover seeds Requires a period of cold moist stratification
<i>Rehmannia</i>	13°C–18°C (55°F–64°F)	30–90 days	Sow indoors in late Winter, ideally in a propagator Very lightly cover seeds
<i>Rodgersia</i>	13°C–16°C (55°F–61°F)	more than 90 days	Sow in Spring Leave seeds uncovered when sown as needs light to germinate Chilling may improve germination Requires damp conditions

Genus	Temperature	Time to germinate	Notes
<i>Rosa</i>	13°C–16°C (55°F–61°F)	up to 1 year	Warm stratify for 12 weeks; Cold stratify for 12 weeks Chilling may improve germination Variable germination
<i>Roscoea</i>	10°C–16°C (50°F–61°F)	up to 1 year	Leave seeds uncovered when sown Requires light to germinate Requires a period of cold moist stratification
<i>Rudbeckia</i>	16°C–18°C (61°F–64°F)	up to 30 days	Cover with 2mm vermiculite
<i>Salvia</i>	18°C–24°C (64°F–75°F)	up to 90 days	Sow in Spring and leave seeds uncovered when sown Use well drained compost
<i>Sanguisorba</i>	13°C–16°C (55°F–61°F)	up to 30 days	Leave seeds uncovered when sown
<i>Saponaria</i>	18°C–21°C (64°F–70°F)	30–90 days	Cold stratify for 3 weeks Leave seeds uncovered when sown Requires light to germinate
<i>Sarcococca</i>	16°C–21°C (61°F–70°F)	30–90 days	Sow in Spring
<i>Scabiosa</i>	18°C–21°C (64°F–70°F)	30–90 days	Sow in spring covering seed with 3mm of compost
<i>Scilla</i>	13°C–16°C (55°F–61°F)	up to 1 year	Species resents root disturbance – sow directly into suitable container
<i>Sedum</i>	13°C–18°C (55°F–64°F)	up to 90 days	Leave seeds uncovered when sown Requires a period of cold moist stratification
<i>Silene</i>	16°C–21°C (61°F–70°F)	up to 30 days	Lightly cover seeds
<i>Silphium</i>	16°C–21°C (61°F–70°F)	30–90 days	Species resents root disturbance – sow directly into suitable container Lightly cover seeds Requires a period of cold moist stratification
<i>Sisyrinchium</i>	13°C–18°C (55°F–64°F)	up to 1 year	Species resents root disturbance – sow directly into suitable container
<i>Stachys</i>	18°C–21°C (64°F–70°F)	30–90 days	Lightly cover seeds
<i>Stipa</i>	18°C–21°C (64°F–70°F)	30–90 days	Use well drained compost
<i>Succisa</i>	18°C–21°C (64°F–70°F)	10–21 days	Lightly cover seeds
<i>Succisella</i>	13°C–16°C (55°F–61°F)	up to 30 days	Lightly cover seeds
<i>Telekia</i>	16°C–21°C (61°F–70°F)	10–21 days	Sow in Spring Surface sow as light is needed for germination

Genus	Temperature	Time to germinate	Notes
<i>Thalictrum</i>	13°C–18°C (55°F–64°F)	up to 90 days	Lightly cover seeds
<i>Tigridia</i>	21°C–27°C (70°F–81°F)	up to 1 year	Species resents root disturbance – sow directly into suitable container
<i>Tropaeolum</i>	13°C–18°C (55°F–64°F)	10–15 days	Cover the seeds with 6mm of compost
<i>Tulbaghia</i>	10°C–16°C (50°F–61°F)	30–90 days	Sow in Spring
<i>Umbilicus</i> (<i>Chiastophyllum</i>)	16°C–21°C (61°F–70°F)	up to 90 days	Cold stratify for 2 weeks Leave seeds uncovered when sown Use well drained compost
<i>Valeriana</i>	10°C–16°C (50°F–61°F)	30–60 days	Sow in early Spring or Autumn Lightly cover seeds
<i>Veratrum</i>	13°C–16°C (55°F–61°F)	up to 30 days	Species resents root disturbance – sow directly into suitable container Chilling may improve germination
<i>Verbascum</i>	13°C–16°C (55°F–61°F)	30–90 days	Lightly cover seeds
<i>Verbena</i>	18°C–24°C (64°F–75°F)	up to 90 days	Lightly cover seeds and sow in Autumn Requires a period of cold moist stratification
<i>Veronica</i>	16°C–21°C (61°F–70°F)	up to 90 days	Leave seeds uncovered when sown Requires light to germinate
<i>Veronicastrum</i>	16°C–21°C (61°F–70°F)	up to 90 days	Leave seeds uncovered when sown Requires light to germinate
<i>Viola</i>	13°C–18°C (55°F–64°F)	30–90 days	Sow 2mm deep in Spring If germination is erratic seeds may need a period of cold moist stratification
<i>Watsonia</i>	10°C–16°C (50°F–61°F)	may take more than 1 year	Species resents root disturbance – sow directly into suitable container
<i>Ypsilandra</i>	16°C–21°C (61°F–70°F)	up to 90 days	Species resents root disturbance – sow directly into suitable container



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