

Seed Germination Database

The following data is provided by Thompson & Morgan Successful Seed Raising Guide. This guide is out of print.

A seed is an embryo plant and contains within itself virtually all the materials and energy to start off a new plant. To get the most from one's seeds it is needful to understand a little about their needs, so that just the right conditions can be given for successful growth.

One of the most usual causes of failures with seed is sowing too deeply; a seed has only enough food within itself for a limited period of growth and a tiny seed sown too deeply soon expends that energy and dies before it can reach the surface. Our seed guide therefore states the optimum depth at which each type of seed should be sown. Another common cause is watering. Seeds need a supply of moisture and air in the soil around them. Keeping the soil too wet drives out the air and the seed quickly rots, whereas insufficient water causes the tender seedling to dry out and die. We can thoroughly recommend the Polythene bag method (No. 11) which helps to overcome this problem. Watering of containers of very small seeds should always be done from below, allowing the water to creep up until the surface glistens.

Most seeds will of course only germinate between certain temperatures. Too low and the seed takes up water but cannot germinate and therefore rots, too high and growth within the seed is prevented. Fortunately most seeds are tolerant of a wide range of temperatures but it is wise to try to maintain a steady, not fluctuating temperature, at around the figure we have recommended in our guide. Once several of the seeds start to germinate the temperatures can be reduced by about 5 degrees F and ventilation and light should be given.

Some perennials and tree and shrub seeds can be very slow and erratic in germination. This may sometimes be due to seed dormancy, a condition which prevents the seed from germinating even when it is perfectly healthy and all conditions for germination are at optimum. The natural method is to sow the seeds out of doors somewhere where they will be sheltered from extremes of climate, predators, etc. and leave them until they emerge, which may be two or three seasons later. Dormancy, however, can be broken artificially and our section Nos. 12-16 deals with this.

HINTS ON SEED RAISING

1. Strelitzia and similar

Do not chip or mark the seedcoat at all but merely remove the orange tuft and soak for up to 2 hours, or even overnight. Sow the seeds in moist sand, pressing them into the sand until only a small part of the black seed is visible and grow in a temperature of 75 degrees F in the dark and ensure that the sand always remains moist. From 7 days onwards inspect the container once a week and as soon as any bulges, roots or shoots are seen remove the germinated seed and pot up in a compost of half peat and half sand. We find that Strelitzias often produce a root without a shoot and we have also found that the young shoots and roots are susceptible to fungal attack. Therefore as soon as possible pot up and provide light and fresh air. Germination can start within 7 days and carry on for 6 months or more.

2. Palms; Banana; Coffee; Mini-Orange; Tea; Cycads and similar

All these items can take several months to germinate and are very erratic in germination. Soak for at least 2 hours in warm water before sowing. (After soaking the parchment shell on the Coffee seeds should be removed with the fingernail). Sow in Levington or Arthur Bowers (compost and place in the dark in a temperature of 75 degrees F, keeping the compost moist at all times, but not wet. Inspect regularly and occasionally dig around in the compost with a penknife. We normally sow our seeds just below the surface of the soil and we have found that sometimes they make a very vigorous root without producing a shoot at all. If you find a seed with a root then it should be excavated and potted up into a 3-4" pot immediately when it will produce a shoot. Cycads prefer to be potted up into a compost of half sand and half peat. The Tea requires the above treatment but in a lower temperature of 60-65 degree F.

3. Clivia and similar

Sow these seeds immediately on receipt in Levington or a peat based compost, covering with a 1/2 " compost. Water and place in the dark in a temperature of 65-70°F. Germination should occur within 3 weeks.

4. Ferns (Garden and Indoor)

The fern spore needs a fine film of moisture over which to swim in order to complete the process of reproduction, therefore a good peat compost, such as Levington, ought to be used pressed down very firmly and which is a lot more moist than one would normally have it in order to provide the moisture film. The spore (seed) should be sprinkled close together on the surface of the soil and not covered and the container should be covered with a piece of glass and placed in diffused light, but not darkness. It is essential to ensure that the compost remains moist at all times. Germination which commences with the appearance of a film of green jelly over the soil can take anything from 1-5 months.

You may wish to try germinating the fern spore on blotting paper which is placed in a saucer and kept moist at all times. A transparent cover is inverted over the saucer and the whole lot placed in a well lit but not sunny position. You can actually see the fern spores developing and when you can see small plantettes appearing along the jelly the blotting paper should be lifted and placed on the surface of a container of Levington compost and watered well. It should then be covered with a transparent cover which can remain there until the plants are quite large.

**5. Bromeliads; Cineraria;
Calceolaria; Insect Eaters (Drosera, Nepenthes, Sarracenias);
Living Stones; Meconopsis;
Rubber Plants; Saintpaulia; Streptocarpus;**

Tibouchina; Xmas Cactus; Begonia and similar

These seeds should be sown on the surface of the compost and not covered. The compost should be quite moist and we would recommend that you cover the seed container with a piece of glass or clear plastic and leave in a temperature of approximately 65 degrees F in a position which receives diffused light. Once some of the seeds have germinated air should be admitted gradually otherwise the seedlings may damp off.

Alternatively the seeds can be sown on to moist blotting paper or kitchen towel placed in a saucer. Cover with a transparent cover and place on a windowsill which receives plenty of light, but not direct sunlight. Keep the blotting paper wet at all times and when the tiny seedlings are large enough to handle prick out into small pots. If the INSECT EATERS are sown using the first method described the compost requires to be both moist yet free draining. Use only pure peat with no fertilizers added to which sphagnum moss should be added if available.

6. Alstroemeria; Bonsai; Clematis; Hardy Cyclamen; Eucalyptus; Flower Lawn; Helleborus; Hosta; Primula; Iris and similar.

Sowing OCTOBER-FEBRUARY. Sow the seeds in John Innes seed compost, covering them with a thin layer of compost. After watering place the seed container outside against a North wall or in a cold frame, making sure they are protected against mice, and leave them there until the spring. The compost should be kept moist but not wet at all times, and if the seed containers are out in the open then some shelter has to be given against excessive rain. In the spring bring the seed containers into the greenhouse, or indoors on to a well lit but not sunny windowsill and keep the compost moist. This should trigger off germination. If the seeds do not germinate in the spring keep them in cool moist conditions throughout the summer. As each seed germinates we would recommend that you transplant it almost immediately into its own pot.

Sowing MARCH-SEPTEMBER. Sow in John Innes seed compost, or something similar, and place each container in a polythene bag and put into the refrigerator (not the freezer compartment) for 2-3 weeks. After this time place the containers outside in a cold frame or plunge them up to the rims in a shady part of the garden border and cover with glass or clear plastic. Some of the seeds may germinate during the spring and summer and these should be transplanted when large enough to handle. The remainder of the seeds may lay dormant until next spring.

Germination of some items, particularly Alstroemeria, Clematis, Hardy Cyclamen and Christmas Rose (Helleborus) may take take 18 months or more.

An alternative method for growing PRIMULAS is to sow in a peat based compost which has already been moistened and do not cover the seed. Cover the container with a piece of glass or plastic and grow in the dark in a steady temperature of 60F. This is quite adequate and over

65°F germination will be inhibited. When the seeds start to germinate sprinkle a thin layer of fine compost over them and when the seed leaves come through this, move the box to a well lit place with a temperature of 55°F. At no time should the seed box be in full sun.

Hardy Cyclamen have been found to germinate best in total darkness at around 55-60°F. We have had good results with the following method. Place the seeds between two pieces of damp filter paper, Kleenex tissue, etc., then put into a polythene bag and place this into an opaque container in order to exclude all light. Inspect the seeds after a month and remove and prick out as the seedlings appear, returning the ungerminated seeds to total darkness.

7. Freesia

Soak the seeds for 24 hours and sow in Levington compost, or something similar, and place in a temperature of 50-60°F. Germination can sometimes be slow.

8. Nertera Granadensis (Bead Plant)

We recently found that this subject requires a well drained compost which is completely free from fertilizer (e.g. moss peat and sand in equal parts). Sow by barely covering the seed and place a sheet of glass over the container, and leave in a temperature of 65-75°F. Turn the glass daily as excessive condensation can kill the young seedlings. On germination the seedlings look very thin and spindly and the glass should be removed almost immediately and the seed container moved to a well lit but not sunny position. Prick out as soon as possible into a compost of 50% pure peat and 50% sand. Keep moist and shaded until established.

9. Cactus and similar

Make very shallow furrows in compost with a plant label and sow in these. No seed should be completely buried. Water from beneath and cover with glass and brown paper or black Polythene. Place in a dark position in a temperature of 70-75°F and keep moist. On germinating move to a light but not sunny windowsill, give plenty of ventilation and water from beneath. Pot up when they begin to overcrowd. During the first winter only keep warm and do not allow to get too dry. If it is not possible to grow warm then keep them drier. Subsequent years keep relatively dry through the winter. Can be planted outside, plunged to the rim, all summer if required.

10. Lilies

Successful germination of seeds of some lilies requires a period of warmth followed by one of cold.

Method 1. Put seeds in a screw top jar in moist (not wet) peat and keep at 70-75°F for 3-4 months. Inspect regularly, any normal seedlings (that is having root and seedling leaves) should be pricked out as they germinate. Any seeds which produce roots but not seedling leaves, sow in a pan and keep at 32-40°F for 3 months. Seed leaves and normal growth will follow.

Method 2. Sow in a pan in summer (warm spell); put in a frame (or outside covered by a piece of glass) for the winter. Seeds will germinate in spring. Soil Humus rich (peat or leafmould) lime free and very free drainage (use 1/3 grit). Never overwater, keep bulbs almost dry from November to March.

11. For more delicate seeds

A method which has proved useful for not only small delicate seeds but for a wide range of types is the Polythene bag method.

The seeds should be sown on the surface of the moist compost, covered to their recommended depth if necessary and the container is then placed inside a Polythene bag after which the end is sealed with an elastic band. The bag should 'fog-up' with condensation within 24 hours and if this does not occur place the container almost up to its rim in moisture until the soil surface glistens, then replace in the bag and reseal. The bag is not removed and normally no more watering is required until the seeds germinate. However, it is wise, if left for a long period to check the compost occasionally.

The seed container, bag etc. should be placed in a well lit place with a steady temperature. As soon as a fair number of the seedlings emerge remove the polythene bag, lower the temperature a few degrees and provide plenty of light, but not bright sunshine, to ensure that sturdy seedlings develop. It is also helpful to spray the seedlings occasionally for the first 14 days.

SPECIAL TREATMENT

12. Hard Seeds-Chipping

Some seeds, e.g. Sweet peas, Ipomaea etc., have hard seed coats which prevent moisture being absorbed by the seed. All that is needed is for the outer surface to be scratched or abraded to allow water to pass through. This can be achieved by chipping the seed with a sharp knife at a part furthest away from the 'eye', by rubbing lightly with sandpaper or with very small seed pricking carefully once with a needle etc.

Some of our geranium seeds have already been treated in this way when you receive them.

13. Hard Seeds-Soaking

Soaking is beneficial in two ways; it can soften a hard seed coat and also leach out any chemical inhibitors in the seed which may prevent germination. 24 hours in water which starts off hand hot is usually sufficient. If soaking for longer the water should be changed daily. Seeds of some species (e.g. Cytisus, Caragana, Cliathus) swell up when they are soaked. If some seeds of a batch do swell within 24 hours they should be planted immediately and the remainder pricked gently with a pin and returned to soak. As each seed swells it should be removed and sown before it has time to dry out.

14. Stratification (cold treatment)

Some seeds need a period of moisture and cold after harvest before they will germinate-usually this is necessary to either allow the embryo to mature or to break dormancy. This period can be artificially stimulated by placing the moistened seed in a refrigerator for a certain period of time (usually 3- 5 weeks at around 41 F). With tiny seeds it is best to sow them on moistened compost, seal the container in a Polythene bag and leave everything in the refrigerator for the recommended period. However, larger seeds can be mixed with 2-3 times their volume of damp peat, placed direct into a Polythene bag which is sealed and placed in the refrigerator. Look at seeds from time to time. The seeds must be moist whilst being pre-chilled, but it doesn't usually benefit them to be actually in water or at temperatures below freezing.

Light also seems to be beneficial after prechilling and so pre-chilled seeds should have only the lightest covering of compost over them, if any is required, and the seed trays etc. should be in the light and not covered with brown paper etc.

Information on Seed Stratification

15. Double Dormancy

Some seeds have a combination of dormancy's and each one has to be broken in turn and in the right sequence before germination can take place; for example, some Lilies, Tree paeonies, Taxus need a three month warm period (68-86°F) during which the root develops and then a three month chilling to break dormancy of the shoots, before the seedling actually emerges. Trillium needs a three month chill followed by three months of warmth and then a further three month chill before it will germinate.

16. Outdoor treatment

The above mentioned methods (12-15) accelerate the germination process and help to prevent seeds being lost due to external hazards (mice, disease, etc.) but outdoor sowing is just as effective albeit longer. The seeds are best sown in containers of free draining compost and placed in a cold frame or plunged up to their rim outdoors in a shaded part of the garden, preferably on the north side of the house avoiding cold drying winds and strong sun.

Recent tests show that much of the beneficial effects of pre-chilling are lost if the seed is not exposed to light immediately afterwards. We therefore recommend sowing the seeds very close to the surface of the soil and covering the container with a sheet of glass. An alternative method especially with larger seeds, is to sow the seed in a well prepared ground, cover with a jam jar and press this down well into the soil so that the seeds are enclosed and safe from predators, drying out etc.

We would also recommend you consult No. 6 which contains further practical suggestions regarding the special treatment of seeds.

Germination days.

The usual time period in which a particular variety will germinate given optimum conditions.

Light/Dark

Seeds needing light should have no newspaper, brown paper etc. placed over the trays. Seeds needing dark for germination should be placed in total darkness.

Slow and irregular germination

This is the column with the "X". Not all seeds will show at once
-prick out each seedling as it becomes large enough to handle and don't discard the container until well over the time suggested.

Temperature

A steady temperature between these limits is recommended-fluctuating temperatures can damage a seedling in its critical early stages.

Compost

Most reputable seed composts will be quite adequate and we have indicated where a loam based type such as John Innes or a peat based type such as Levington would be slightly more suitable. On no account should potting composts, which have additional fertilizers, be used.

Sowing Depth

If in doubt sow shallowly, but always ensure that the compost surface is damp.

J.C. =Just cover the seed with compost or sharp sand. **S**=Sow on the surface and do not cover at all with compost.

Sowing in situ

Where recommended under the heading of comments, these seeds can be sown out of doors. Moist soil worked down to a fine tilth is essential. For hardy annuals and perennials sowing can be carried out from late winter onwards as soon as the ground is workable and has warmed up and half hardy annuals after all danger of frost is passed.

SUGGESTED SOWING TIMES

Many seeds, particularly in the house plant range, can be sown indoors at almost any season of the year. Others, for example bedding plants, have a much limited sowing season because the plants need to be at just the right stage when planted out. We therefore offer the following general guide to sowing times. Your actual time of sowing will depend a great deal upon the steady temperature you can maintain in your greenhouse/propagator, soil, local conditions etc.

HA	Hardy Annual	Late winter/early spring.
HHA outside.	Half Hardy Annual	Early/ late spring. Normally 4-8 weeks before planting
GBb	Greenhouse Bulb	
GP	Greenhouse Perennial	Anytime of year.
GSh	Greenhouse Shrub	
GT	Greenhouse Tree	
HP	Hardy Perennial	Late winter/late spring and late summer/autumn.
HHP	Half Hardy Perennial	Late winter/spring.
HBb	Hardy Bulb	Late winter/late spring and late summer/autumn
HHBB	Half Hardy Bulb	Late winter/spring.
HB	Hardy Biennial	Late spring/early summer.
HHB	Half Hardy Biennial	Summer/autumn.
HSh	Hardy Shrub	Winter/late spring and late summer/autumn.
HHSh	Half Hardy Shrub	Any time of year.

HT	Hardy Tree	Winter/late spring and late summer/autumn.
HHT	Half Hardy Tree	Any time of year.

Any plant which is to be planted outside (HA, HHA, HHP, HSh.) should be well hardened off beforehand. This is best achieved by placing the plants outside in a cold frame for around a week before planting out. The frame can be left uncovered during mild weather but always replaced at night. Alternatively if no frame is available move the boxes outside to a sheltered spot during the day and bring indoors at night.

Trees and shrubs are farther down the list.

The "^" stands for slow and irregular germination.

Variety	Type	Germ Days		G Temp	Media	Sow Depth	Comments
Abarema	GP	7-56		70-75	Peaty	1/4"	Scarify seed by rubbing between 2 pieces of emery paper.
Abelmoschus	HHA	15-30		75-80	Well drained	1/16"	Soak 1 hour in lukewarm water before sowing.
Abutilon	HSh	21-30		70-80	Peaty	JC	
Acacia	HSh	21		70-80	Well drained	1/16"	See No. 13. Soak in warm water for 4 hours.
Acaena	HP	30-100		50-60	Well drained	1/4"	
Acanthus	HP	21-25		50-55	Peaty	1/4"	
Achillea	HP	30-100	L	60-65	Well drained	S	Reduce soil temperature at night.
Achimenes	GP	21-30		65-75	Well drained	S	See No. 5. Seed is very small.
Acnistus	HSh	21-42		55-65	Well drained	1/16"	
Aconitum	HP	5-270	L	55-60	Well drained	1/16"	See Nos. 6 & 14. Place in a fridge for 6 weeks.

Actaea	HP	30-365		^	55-60	Well drained	JC	See No. 14. (Pre-chill for 6-8 weeks).
Actinidia plants.	HP	60-90		^	50	Well drained	1/8"	Male & Female flowers are borne on separate
Adansonia	GSh	21-365		^	70-80	Peaty	1/16"	Soak in hand hot water. See No. 13.
Adenanthera	GSh	30-90			70-75	Well drained	JC	See No. 13. Soak in hot water.
Adenium	GSh	7-14	L		65-70	Very well drained	JC	
Adenophora	HP	30-90		^	50-55	Well drained	S	
Adonis	HA, HP	30-120		^	60-65	Well drained	JC	
Aechmia	GP	7-90	L	^	60-70	Peaty	S	See No. 5.
Aethionema	HP	30-90		^	60-65	Well drained	JC	
Agapanthus	HHP	30-90			60-65	Well drained	JC	
Agastache	HP	30-90			55	Well drained	1/16 "	
Agave	GP	30-90	L	^	55	Well drained	S	
Ageratum	HHA	10-14	L		70-75	Well drained	S	
Agrostemma	HA	14-21			55-65	Well drained	1/8"	Can be sown in situ
Alchemilla	HP	21-30			60-70	Well drained	1/8"	
Allium	HBb	30-365	L		50	Well drained	JC	See No. 14. Place in fridge for 4 weeks.
Aloe	GP	30-180	L		70	Well drained	S	
Alonsoa	HHA	14-21			60	Well drained	1/16"	Cover seed with silver sand.
Alpina	GP	30-90			70-75	Peaty	1/8"	
Alstroemeria	HP	30-365		^	65-70	Peaty	1/16"	See No. 13. Soak in warm water. Sow singly in pcrts.
Alyssum	HA	7-14	L		55-75	Peaty	S	Annuals can be sown in situ.
Amaranthus	HHA	10-15			70-75	Peaty	1/16"	
Amaryllis	HHBb	21-70		^	65-75	Peaty	1/16"	Do not dry off in the first year after sowing.
Ammi	HHA	7-21			55-65	Well drained	1/16"	
Ammobium	HHA	10-15			60	Well drained	1/16"	

Anacampteros	GP	30-90	L	^	65-70	Well drained	S	
Anacyclus	HP	30-60	L	^	55-60	Well drained	JC	See No. 14. (Pre-chill for 3 weeks.)
Anagallis	HHA	30-42			50-65	Well drained	1/8"	
Anaphalis	HP	30-60			55-65	Well drained	JC	
Anchusa	HA, HP	7-30			70	Well drained	1/16"	Can be sown in situ
Androsace	HP	30-365		^	50-55	Well drained	S	See No. 16.
Anemone	HP	28-180		^	65-70	Well drained	JC	See No. 6.
Anemonopsis	HP	30-180	L	^	55-60	Well drained	S	Sow in lime free compost.
Anigozanthus	GP	30-90	L		60-65	Peaty	S	See No. 5.
Anoda	HHA	14-21			55-65	Well drained	1/4"	Can be sown in situ
Antennaria	HP	30-69			55-60	Well drained	JC	Just cover with silver sand.
Anthemis	HP	0-14			70	Well drained	S	
Anthericum	HP	30-90			50	Well drained	1/8"	
Anthriscus	HP, HB	14-21			55-65	Well drained	1/4"	Usually sown in situ
Anthyllis	HP	30-60			50	Well drained	1/8"	See No. 13. Soak in warm water overnight.
Antigonon	GP	21-30			65-70	Well drained	JC	
Antirrhinum	HHA	10-21	L		65-75	Peaty	S	
Aphyllanthes	HP	21-56		^	55-60	Peaty	JC	
Aquilegia	HP	30-90	L	^	65-75	Well drained	S	See No. 6 or 14. (Pre-chill for 3 weeks). Keep
		temperature below 70°F						
Arabis	HP	20-25	L		70	Well drained	S	Can be sown in situ.
Arachis	GA	7-21			70-75	Peaty	1/4"	Sow, then place inside a polythene bag until
		germination.						
Araujia	HHS	90-180		^	75-80	Well drained	JC	
Arctotis	HHA	21-35			60-70	Well drained	JC	
Ardisia	GSh	90-180			75	Well drained	1/4"	
Arenaria	HP	15-30			55-65	Well drained	S	

Argemone	HA	14			65-70	Well drained	1/8"	Can be sown in situ
Arisaema	HP	30-180	L	^	55-60	Well drained	JC	
Aristea	GP	30-90		^	55-60	Well drained	JC	
Aristolochia	GSh	30-90		^	75-85	Peaty	S	See No. 13. (Soak 48 hours in hand hot water).
Armeria	HP	14-21			60-70	Well drained	JC	See No. 13. (6-8 hours in hand hot water).
Arnica	HP	25-30			55	Well drained	JC	Likes an acid sandy soil.
Artemisia	HP	30-60	L		60-65	Well drained	S	
Arum	HP	30-180		^	55-65	Peaty	1/8"	
Aruncus	HP	30-90			55-65	Peaty	S	
Asarina	HHP	14-21	L		65-70	Well drained	S	
Asarum	HP	7-30			60-65	Well drained	1/16"	Sow as soon as possible.
Asclepias	GP, HP	30-90		^	50-75	Peaty	1/16"	See No. 14. (Pre-chil for 3-4 weeks).
Asparagus	GP	21-30			60-70	Peaty	1/4"	Soak then chip. See Nos. 12 and 13.
Asperula	HA	30-42	L		50	Well drained	1/16"	Can be sown in situ or No. 14. (Pre-chill 2 weeks).
Asphodeline	HP	30		^	70-75	Well drained	JC	
Aster weeks).	HHA	10-14			65-70	Well drained	1/16"	Pre-chill perennial asters, see No. 14. (Pre-chill 2
Astilbe	HP	40-80			65	Peaty	S	See No. 5.
Astrantia	HP	30-180	L	^	55-65	Well drained	S	See No. 14. (Pre-chill for 4 weeks).
Atriplex	HA	9-21			50-55	Well drained	1/16"	Can be sown in situ
Atropa	HP	21-30			50	Well drained	1/16"	
Aubrieta	HP	14-21	L		65-75	Well drained	S	See No. 5.
Baileya	HHP	7-30			60-65	Well drained	JC	
Balsamorhiza	HP	14-42			60-65	Well drained	1/16"	
Banana (Musa)	GP	7-180		^	70-80	Peaty	1/2 ²	See No. 2.

Banksia	HSh	30-90		^	65-70	Peaty	S	See No. 5.
Baptisia	HP	7-10			70-75	Well drained	1/4"	Soak then chip. See Nos. 13 and 12.
Basil	HHA	7-10			60-70	Well drained	1/16"	Can be sown situ
Bauhinia	GSh	21-42			75-85	Peaty	1/4"	See No. 13. (Soak 48 hours in hand hot water).
Beaufortia	HSh	14-60	L		55-65	Peaty	S	See No. 5.
Beaumontia	GSh	7-30			70-75	Peaty	1/16"	
Begonia	HHP	15-60	L	^	70-80	Peaty	S	See No. 5. Fibrous 70-75°F, tuberous 65-70°F.
Belamcanda	HP	14-60		^	60-86	Well drained		See No. 14. (Pre-chill for 7 days).
Bellis	HB	10-15	L		70	Peaty	1/16"	Reduce soil temperature at night.
Beloperone	GP	30-180	L	^	70-75	Peaty	S	See No. 5.
Bergenia	HP	30-180		^	60-70	Peaty	S	See No. 14. (Pre-chill for 2 weeks).
Berlandiera	HHP	30-90	L		60-70	Well drained	S	
Beta	HB	14-21			55-65	Well drained	1/4"	Usually sown in situ.
Bignonia	GP	30-90		^	60-70	Peaty	S	
Billadiera	HHP	30-60			55	Sandy peat	JC	
Billbergia	HHP	7-90	L		60-70	Peaty	S	See No. 5.
Biscutella	HHA	14-21			55-65	Well drained	JC	Can be sown in situ.
Bixa	GT	30-180		^	75-80	Peaty		
Blandfordia	HHP	30-90+		^	60-70	Sandy peat	JC	
Bletilla	HHP	30-365	L	^	65-70	Peaty	S	See No. 5.
Boea	GP	20-60	L	^	70-75	Peaty	S	See No. 5.
Boronia	GSh	30-60	L		65-75	Peaty	S	See No. 5.
Brachycombe	HHA	10-18			70	Well drained	JC	
Brimeura	HBb	30-60		^	60-65	Sandy peat	JC	
Bromeliads	GP	7-90	L	^	60-70	Peaty	S	See No. 5.

Browellia	GP	14-21	L		75	Peaty	S	See No. 5.
Brunfelsia	GP	30-90		^	70-80	Well drained	JC	
Bulbinella	H/HHBb	30-90		^	55	Well drained	JC	
Bupthalmum	HP	14-30	L		70-75	Well drained	S	
Cacti	GP	5-180	L	^	75-80	Peaty	S	See No. 9.
Caesalonia	HhSh	14-120		^	75-80	Well drained	1/4"	See No. 13. (Soak 48 hours in hand hot water).
Calandrinia	HHA	5-14			55-60	Well drained	1/8"	Can be sown in situ
Calceolaria	GB	14-21	L	^	65-75	Peaty	S	Outdoor varieties keep temperature below 60°F.
Calendula greenhouse flowers.	HA	10-14	D		70	Any	1/4"	Can be sown in situ, or autumn for winter
Calibanus	GP	30-120	L	^	70-80	Peaty	S	
Calliopsis	HA	14			60-65	Well drained	1/8"	Can be sown in situ
Callirhoe	HP	30-180+	L	^	50	Well drained	S	Can be sown in situ or a cold frame.
Callistemon	HhSh	14-60	L		55-65	Peaty	S	See No. 5.
Caltha	HP	30-90		^	55-60	Peaty	1/16"	Keep compost slighty moist.
Camassia	HBb	30-180		^	55-60	Well drained	1/16"	
Campanula	HP, HB	14-28	L		60-70	Peaty	S	See No. 5.
Campsis	HhSh	30-90		^	70-75	Well drained	S	See No. 14. (Pre-chill for 2 months).
Canarina	GP	30-180		^	65-75	Well drained	JC	
Candytuft slow and irregular.	HA, HP	10-15			68-85	Well drained	1/4"	Can be sown in stiu. Perennials (60-65°F) can be
Canna	HHP	21-60		^	70-75	Peaty	1/4"	See Nos 12 & 13, chip and soak for 48 hours.
Capsicum	GA	21-30	L		70-75	Peaty	S	
Cardiocrinum	HBb	90-730		^	50	Peaty	1/16"	See No. 6.
Cardiospermum	HHA	21-30			65-70	Well drained	1/2"	
Carica	GSh	30-120		^	75	Peaty	1/8"	See No. 13. (Soak for 40 hours).

Carlina	HP	30-60	L	55-60	Well drained	S	
Carthamus	HA	12-18		55-65	Well drained	1/4"	Can be sown in stiu
Cassia	GSh	7-90		70-75	Well drained	1/8"	See No. 12.
Casuarina	GT	30-90		65	Well drained	JC	
Catananche	HP	21-25		65-75	Well drained	1/16"	
Catharanthus	GA/HHA	15-20	D	70-75	Peaty	1/8"	
Celosia	GA	10-15	L	70-75	Well drained	JC	Do not sow too early - likes warm bouyant conditions.
Centaurea	HP, HA	7-14	D	60-70	Well drained	1/16"	
Centranthus	HP	21-30		60-70	Well drained	JC	Can be sown in situ.
Cephalaria	HP	21-60		55-65	Well drained	1/4"	Can be sown in situ.
Cephalilitrum	HHA	14-21		65-75	Well drained	JC	
Cerastium	HP	5-10		60	Well drained	1/16"	
Ceratotheca	HHA	8-14		70-75	Well drained	1/8"	
Cerithe	HHA	7-14		60-65	Well drained	1/16"	Can be sown in situ
Cheiranthus out in Oct.	HB	14-21		65-75	Well drained	1/8"	Sow in a reserve bed, prick out 6" apart. Plant
Chelidonium	HP	30-365	^	55-65	Well drained	1/8"	See No. 16.
Chelone	HP	14-42		55-65	Well drained	1/16"	Needs good drainage.
Chiastophyllum	HP	30-60		55	Well drained	S	Seeds very small.
Chionodoxa	HBb	30-90	^	55	Well drained	1/4"	
Chlorogalum	HBb	30-90	^	55-80	Well drained	1/8"	See No. 6.
Chrysanthemum temperature at night.	HA, HP	10-18		60-70	Peaty	1/8"	Annuals can be sown in situ. HP's reduce
Cimicifuga	HP	30-365	^	55-60	Well drained	1/16"	
Cineraria	GP	14-21	L	70	Well drained	JC	
Cirrhopetalum	GP	30-180	L	65-70	Well drained	S	

Cirsium	HP	15-18		70-75	Well drained	1/8"	
Cissus	GSh	30-180		70-75	Well drained	JC	
Cladanthus	HA	30-35		70-75	Well drained	JC	
Clarkia produced.	HA	21		-	Well drained	1/4"	Best sown in situ, as sturdier plants are
Claytonia	HA	14-21		65-70	Well drained	1/8"	
Clematis	HP	30-270+		70-75	Well drained	1/8"	See Nos. 6 & 16.
Cleome	HHA	10+14	L	70-75	Well drained	S	See No. 14. (Pre-chill for 2 weeks).
Clerodendrum	GSh	21-60		70-75	Well drained	1/8"	
Clianthus	GSh	14-42		65-70	Well drained	1/16"	See No. 13.
Clintonia	HP	30-90		55-60	Sandy peat	JC	Keep compost always just moist.
Clitoria	GP	15-20		70-75	Well drained	1/16"	See Nos. 12 and 13. (Chip and soak for 24 hours).
Clivia	GP	7-21		80-85	Peaty	1/4"	Sow immediately. See No. 3.
Cobaea	HHA	21-30		70-75	Well drained	1/16"	Stick the seed vertically into the compost.
Coccoloba	GSh	10-21		65-70	Well drained	1/4"	See No. 13. (Soak for 24 hours).
Codonopsis	HP	7-42	L	60-70	Slightly acid	S	
Coffea	GSh	42-56	L	75	Peaty	S	See No. 2. (Soak for 48 hours).
Colchicum	HBb	30-365		55-65	Peaty	1/8"	See No. 16.
Coleus light.	HHP	10-20	L	65-75	Peaty	S	Indoors, likes to be warm with plenty of bright
Collinsia	HHA	14-21		-	Well drained	1/4"	Best sown in situ, thin out to 6'.
Collomia	HA	21		-	Well drained	1/8"	Best sown in situ, thin out to 6".
Columnea	GP	30-120	L	72-75	Peaty	S	
Commelina	HHP	30-37		70	Well drained	1/8"	
Conophytum	GP	10-40	L	75-80	Well drained	S	
Convallaria	HP	60-365+	L	50-60	Well drained	JC	See No. 16.
Convolvulus	HA	5-14		70-80	Well drained	1/8"	Chip (12) or soak (13) the seeds.

Cordyline	GP	30-90		75-80	Peaty	1/16"	See No. 13. (Soak for 10 minutes in hand hot water).
Coreopsis	HP	20-25	L	55-70	Well drained	S	Annuals can be sown In situ
Correa	HHSa	30-90		65-72	Well drained	JC	
Cortaderia	HP	14-21	L	60-75	Peaty	S	See No. 5.
Corydalis	HP	30-60	L	50-60	Well drained	S	
Cosmos	HHA	5-10		68-86	Well drained	1/8"	Can be sown in situ
Cotula	HHA	14-42		50	Well drained	1/16"	
Crambe	HP	21-42		-	Well drained	1/2"	Best sown In situ.
Craspedia	HHA	14-30		70-75	Peaty	1/8"	Can be sown in situ.
Crepis	HA	5-14		70-80	Wed drained	JC	
Crococsmia	HP	30-90		55-60	Well drained	1/16"	
Crocus	HBb	30-180		55-65	Well drained	1/8"	
Crossandra	GP	25-30	L	75-80	Peaty	S	See No. 5.
Crotalaria	GSh	21-30		65-75	Well drained	1/16"	See No. 13. (Soak for 2 hours)
Cryptostegia	GCI	30-90		65-75	Well drained	1/16"	See No. 13. (Soak for 2 hours)
Cunonia	GSh	30-60		70-75	Peaty	1/16"	
Cuphea	HHP	8-10	L	70	Peaty	S	
Cyananthus	HP	14-60	L	60-65	Peaty	S	See No. 5.
Cycad	GP	30-90		70-75	Well drained		Half bury the seed lengthwise.
Cyclamen	GP	30-60	D	55-60	Peaty	1/4"	Keep moist and in total darkness.
Cyclamen	HP	30-180	D	55-60	Peaty	1/4"	See No. 6.
Cynara	HP	14-30		50-55	Well drained	1/8"	Can be sown In situ.
Cynoglossum	HA	5-10	D	65-75	Peaty	1/4"	
Cyperus	HHP	25-30		70-75	Peaty	JC	Keep the compost slighty moist.
Cyphomandra	GP	20-25		70-75	Peaty	1/16"	

Cyphostemma	GP	30-60		^	70	Well drained	1/4"	See No. 13. (Soak for 2 hours).
Cypripedium	HP	30-365	L	^	65-70	Peaty	S	See No. 5. Very difficult outside the laboratory.
Cyrtanthus	GP	30-90		^	55-65	Peaty	S	Keep the compost slightly moist
Dahlia	HHA	5-20			65-70	Peaty	1/16"	Do not let the compost dry out.
Darlingtonia	HP	30-90		^	75-80	Peaty	S	Do not let the compost dry out. See also No. 5.
Datura	HSHH	21-42			55-65	Well drained	1/8"	
Delonix	GT	30-90		^	75-85	Peaty	1/16"	See No. 13. (Soak for 24 hours).
Delosperma	HHP	10-40	L		75	Well drained	S	
Delphinium weeks).	HP	14-28	D	^	50-55	Peaty	1/16"	High temps. cause dormancy. See No. 14. (Pre-chill for 2 weeks).
Desmodium	GA	30-90			75-80	well drained	1/16"	
Dianella	H/HHP	30-90			65-70	Well drained	1/16"	
Dianthus	HHA, HP	14-21			60-70	Well drained	JC	
Diascia	HHA	14-30			60	Well drained	JC	
Dicentra	HP	30-180	L	^	55-60	Well drained	JC	See No. 14. (Pre-chill for 6 weeks).
Dichorisandra	GP	7-60			70-75	Peaty	JC	
Dictamnus	HP	30-180		^	55-60	Well drained		See No. 14. (Pre-chill for 4-8 weeks).
Didymocarpus	Gp	14-56	L	^	65-70	Well drained	S	
Dierama	HP	30-180	L	^	60-65	Well drained	S	See No. 5.
Dietes	HHP	30-90		^	50-60	Well drained	JC	
Digitalis	HP, HB	15-20	L		60-65	Peaty	S	Can be sown in situ.
Dimorphotheca	HHA	10-15	L		60-70	Peaty	JC	
Dionaea	GP	30-90	L	^	75-80	Peaty	S	See No. 5.
Dioon	GP	30-90		^	70-75	1/2 peat, 1/2 sand	1/4"	See No. 2.
Dioscorea	HP	21-36			70-75	Peaty	1/8"	

Diplarrhena	HP	30-90			55-65	Well drained	JC	
Diplolaena	GSh	30-150	L	^	7-80	Peaty	JC	
Dipsacus	HB	4-30			-	Well drained	1/4"	Best sown in situ
Disporum	HP	30-180+	L	^	55-65	Well drained	JC	See No. 14. (Pre-chill for 6 weeks).
Dizygotheca	HSh	20-30	L		70	Peaty	S	
Dodecatheon	HP	90-365			60-70	Well drained	1/16"	See No. 6.
Dolichos	HHA	14-30			70	Well drained	1/16"	See No. 13.
Doronicum	HP	15-20	L		70	Well drained	S	Reduce soil temperature at night
Doryanthes	HHP	30-60			65	Peaty	JC	See No. 13. (Soak for 3 hours).
Draba	HP	30-90		^	55	Well drained	JC	See Nos. 6 and 14.
Dracaena	GSh	30-180	L	^	75-85	Well drained	S	Keep the compost slightly moist
Dracunculus	HP	30-180		^	55-65	Peaty	JC	Keep the compost slightly moist
Drosera	GP	30-90	L		55-65	Peaty	S	See No. 5.
Dryas	HP	50-180		^	60-70	Well drained	JC	See No. 6.
Duchesnia	HP	30-90	L	^	55-65	Well drained	JC	
Duranta	GSh	30-60			70-75	Peaty	JC	
Eccremocarpus	HP	30-60		^	55-60	Well drained	JC	Cover the seed slightly with silver sand
Echeveria	HHP	21-90	L	^	55-65	Well drained	JC	
Echinacea	HP	10-21	L		70-75	Peaty	1/8"	Reduce soil temperature at night.
Echinops	HP	15-60			65-75	Peaty	1/16"	
Echium	HA	7-14			70	Well drained	1/4"	Can be sown in situ.
Edraianthus	HP	30-60	L		55-65	Well drained	1/16"	
Egg Plant	GA	10-21		^	70	Peaty	1/8"	Keep the compost slightly moist
Emilia	HHA	8-15			70	Well drained	1/16"	
Epilobium	HP	14-30			50-60	Well drained	1/8"	

Episcia	GP	25-40	L		70-80	Peaty	S	Seeds dust like. See also No. 5.
Eranthis	HBb	30-365		^	60-68	Well drained	1/16"	See No. 6 and 14.
Eremurus	HP	30-365	L	^	55-65	Well drained	JC	See No. 16
Erica	GP	30-120	L	^	60-70	Acid Peat	S	See No. 5.
Erigeron	HP	15-20			55	Well drained	S	
Erinus	HP	20-25			65-75	Well drained	S	
Eriobotrya	HHSb	30-180		^	50	Well drained	JC	See No. 13. (Soak for 24 hours).
Eriophyllum	HP	14-42			-	Well drained	1/8"	Best sown outdoors and transplanted.
Eryngium	HP	5-90	L	^	65-75	Well drained	S	See No. 6.
Erysium	HP	14-30			-	Well drained	1/4"	Sow in situ.
Erythrina	HHSb	10-15			70-75	Peaty	1/8"	See No. 13. (Soak for 24 hours).
Erythronium	HBb	30-365		^	50-60	Well drained	1/8"	See No. 6.
Eschscholtzia	HA	14-21			60-65	Well drained	1/4"	Resents transplanting, best sown in situ.
Eucalyptus	HHSb, HT	14-90		^	70-75	Peaty	S	Sow seed and chaff together. See No. 14. (Pre-chill for 4 weeks).
Eucnide	HHA	21-30			60-70	Well drained	1/8"	
Eucomis	GBb	20-25			70-75	Peaty	1/16"	
Eupatorium	HP	30-90		^	55	Well drained	JC	
Euphorbia	HHA, HP, GSh	10-15		^	70-80	Well drained	1/4"	Pre chill HPs for 7 days and then soak for 2 hours. Sow in lime free compost (Ericaceous).
Eustoma	HHP	10-21	L		68-77	Well drained	S	
Exacum	GA	15-20	L		70-75	Peaty	S	Seed dust like. See No. 5.
Fascicularia	HHP	30-120	L	^	60-70	Peaty	S	See No. 5.
Fatsia	HSSH	15-20			70-75	Peaty	1/4"	Keep the compost slightly moist.
Faucaria	GP	14-30		^	60	Well drained	JC	Just cover with sharp sand.

Feijoa	HSHH	21-42			55-60	Peaty	1/16"	Rinse seeds 3 times before sowing.
Felicia Amelloides	HHP	30			55-60	Well drained	JC	See No. 14. (Place in fridge for 3 weeks).
Felicia Bergeriana	HHA	30			70	Well drained	JC	
Ferns	HP, GP	30-180	L		65	Peaty	S	See No. 4.
Ficus	GSh	15-90	L	^	70-80	Peaty	S	See No. 5.
Filipendula	HP	30-90			55-60	Well drained	JC	
Flower Lawn	HP	30-180	L	^	55-65	Well drained	S	See Nos. 6 or 16.
F.Cabbage & Kale	HB	14-21			70-75	Peaty	1/8"	Can be sown in situ
Foeniculum	HP	10-14	D		65	Well drained	1/8"	Dislikes transplanting, sow in situ.
Francoa	HHP	14-30	L	^	50-55	Peaty	S	See No. 6.
Freesia	HHBB	25-30		^	65-75	Peaty	1/4"	See No. 7.
Fritillaria	HBb	330-540		^	55-M	Peaty	1/16"	See No. 6.
Fuchsia compost moist.	GP	21-90	L	^	70-75	Peaty	S	See No. 5. Soak in rain water for 3-4 days. Keep
Gaillardia	HP, HHA	15-20	L	^	70-75	Peaty	S	Reduce soil temperature at night.
Galega	HP	14-60			-	Well drained	1/4"	Best sown outdoors and transplanted.
Galtonia	HBb	15-20		^	70	Peaty	1/16"	
Gardenia	GSh	25-30			70-75	Peaty	1/8"	Use a lime free compost (Ericaceous).
Gaura	HHA	14-30			65-75	Well drained	1/16"	
Gazania	HHA	8-21	D		60-65	Well drained	1/8"	
Gentiana	HP	14-180	D	^	70-75	Lime free	JC	See No. 14. (Pre-chill for 2 months).
Gentianopsis disturbance.	HA	21-30	L		-	Well drained	S	Sow outdoors and thin. Sensitive to root
Geranium	HHP	3-21		^	70-75	Well drained	JC	
Geranium	HP	30-90		^	50	Well drained	JC	See No. 6.
Gerbera	GP	15-25	L		70-75	Peaty	JC	Sow sharp end down, don't cover completely.

Gesneria	GP	14-21	L		70-75	Peaty	S	See No. 5.
Geum	HP	21-28+		^	65-70	Peaty	1/16"	Reduce soil temperature at night.
Gilia	HA	17			-	Well drained	1/8"	Sow outdoors and thin out.
Glaucidium	HP	30-90		^	50-55	Peaty	JC	
Glaucium	HA	14-21	D		60-65	Well drained	JC	Transplant carefully, best sown In situ.
Globularia	HP	10-30	L		55	Well drained	S	See No. 14. (Pre-chil for 3 weeks).
Gloriosa	HHBb	30			70-75	Peaty	1/16"	
Gloxinia	GP	15-30	L	^	65-75	Peaty	S	See No. 5.
Gnaphalium	HP	14-21	L		60-70	Well drained	S	
Godetia	HA	7-14			60-65	Well drained	1/4"	Can be sown in situ
Gomphrena	HHA	6-8	L		70-75	Well drained	JC	
Gourds	HHA	15-29			80	Peaty	1/4"	Can also treat as No. 5.
Grass Tree	HHP	30-180	L	^	65	Peaty	S	See No. 4.
Grasses	HP, HHA	10-90	L	^	60-75	Peaty	S	
Grevillea	HHSb	20-25	L		75-80	Well drained	S	See No. 13. (Soak for 24 hours).
Gunnera	HP	14-60		^	70-80	Peaty	1/16"	
Guzmania	GP	7-90	L	^	60-70	Peaty	S	See No. 5.
Gypsophila	hA, HP	10-15		^	70	Peaty	JC	
Hacquetia	HP	30-180		^	55	Well drained	JC	See No. 16.
Haemanthus	GBb	7-42			60-65	Peaty	JC	
Haplopappus	HP	21-30			60-70	Well drained	1/8"	
Hardenbergia	HHP	30-90		^	55-65	Well drained	1/8"	See No. 13. (Soak for 24 hours).
Harpephyllum	GP	10-30			70-75	Peaty	1/4"	See No. 13. (Soak for 24 hours).
Haworthia	HHP	21-60	L		60-65	Well drained	JC	

Hedychium	HHP	20-25		70-75	Peaty	1/16"	See No. 13. (Soak for 2 hours).
Hedysarum	HP	14-42		55-65	Well drained	1/16"	
Helenium	HP	7-10		70	Peaty	1/16"	Can be sown in situ. Reduce soil temperature at night.
Helianthemum	HP	15-20		70-75	Well drained	S	See No. 5.
Helianthus	HA	10-14		70-85	Peaty	1/4"	Can be sown in situ.
Helichrysum	HHA	7-10	L	65-75	Well drained	S	
Heliophila	HHA	14-21		60-65	Well drained	1/16"	
Heliopsis	HP	10-15		70	Well drained	1/16"	
Heliotropium	HHP	14-42		65-75	Well drained	1/16"	
Helipterum	HA	14-20		65-75	Peaty	1/16"	Can be sown in situ
Helleborous outdoors.	HP	30-545		60-65	Well drained		See No. 6. May need to go through two winters
Hemerocallis	HP	21-49		60-70	Well drained	1/8"	See No. 14. (Pre-chill for 6 weeks).
Hemiphora	GP	30-120		70-75	Peaty	JC	
Hepatica	HP	30-360	L	50-55	Well drained	JC	See No. 14. (Pre-chill for 3 weeks).
Heracleum	HP	30-90		-	Well drained	1/4"	Sow in situ. See No. 6.
Herniaria	HP	10-12		70	Well drained	JC	
Hesperis night.	HB	20-25	L	70-85	Peaty	S	Can be sown in situ. Reduce soil temperature at
Heuchera	HP	10-60	L	65-70	Well drained	S	
Hibiscus	HHP, GA	15-30		75-80	Peaty	1/16"	Chip and soak. See Nos. 12 & 13.
Hieracium	HP	21-30		50-60	Well drained	JC	
Hippeastrum	HHBB	30-42		75	Pemy	1/8"	
Hollyhock	HA, HP	10-12	L	60-70	Peaty	S	Can be sown in situ.
Holmskioldia	GSh	30-90		60-65	Well drained	JC	
Hosta	HP	30-90		50	Peaty	1/16"	Keep compost slighty moist.
Humulus	HP	25-30		70-75	Well drained	1/4"	Can be sown in situ.

Hunnemannia	HHA	15-20			70-75	Well drained	1/16"	Can be sown in situ. Makes a nice pot plant.
Hutchutinsia	HP	14-30			-	Well drained	1/4"	Sow in situ.
Hyoscyamus	HB, HA	14-42			-	Well drained	1/8"	Sow in situ.
Hypericum	HSh	30-90		^	50-55	Well drained	JC	
Hypoestes	GP	10-21			70-75	Well drained	JC	
Hyssopus	HP	14-42			60-70	Peaty	1/16"	
Iliamna	HP	30-360	L	^	55-65	Well drained	1/16"	See No. 14. (Pre-chill for 3 weeks).
Impatiens germination.	HHA	21-30	L	^	70-75	Peaty	S	See No. 5. Maintain a very high humidity until
Incarvillea	HP	25-30			55-65	Well drained	S	See No. 5.
Indigofera	HHSh	30-90		^	50	Well drained	1/8	See No. 13. (Soak for 24 hours).
Inula	HP	14-42			55-65	Well drained	1/16"	Can be sown in situ
Ionopsidium	HA	14-21			55-60	Well drained	1/16"	Sow in situ.
Ipomaea	HHA	5-21		^	70-85	Peaty	1/4"	Chip and soak. See Nos. 12 and 13.
Iris	HP	30-545		^	60-70	Peaty	1/4"	See No. 6. May take two winters outdoors.
Isatis	HB	14-42			50	Well drained	1/16"	Sow in situ.
Ixiolirion	HBb	30-90		^	50	Well drained	1/16"	
Ixora	GSh	30-120		^	70-75	Well drained	1/16"	See No. 14. (Pre-chill for 3 weeks).
Jacaranda	GSh	10-15			70-85	Peaty	JC	
Jacobaea	HA	8-21			60-65	Well drained	1/8"	
Jacobinia	GP	30-180		^	75-80	Peaty	1/8"	See No. 13. soak for 24 hours).
Jasione	HP	10-21			70	Well drained	JC	
Jatropha	GP	30-120		^	65-75	Well drained	1/16"	
Jovellana	H/HHSh	30-90		^	60-50	Well drained	S	

Kalanchoe	GP	7-30	L	^	65-75	Weil drained	S	Likes good air circulation.
Kallstroemia	HHA	14-21		^	60-65	Well drained	JC	
Kaulfussia	HA	21-30		-		Well drained	1/4"	Best sown in situ. Thin to 6 ² .
Kentranthus	HP	21-40			65-70	Well drained	JC	
Kirengeshoma	HP	30-300			55-65	Peaty	JC	Keep compost uniformly moist.
Knautia	HP	10-21		-		Well drained	1/4"	Best sown in situ Thin to 6'.
Kniphofia	HP	10-30			70-75	Peaty	1/4"	Reduce soil temperature at night
Kochia	HHA	10-15	L		70-75	Well drained	S	
Lagerstroemia	HSh	15-20	L		70	Well drained	S	See No. 5.
Lagunaria	GT	30-180		^	68-70	Peaty	1/8"	See No. 13. (Soak for 2 hours).
Lamium	HP	30-60			65-70	Well drained	JC	
Lampranthus	HHP	15-30	D		65-75	Well drained	JC	
Lantana	HHP	42-60		^	70-75	Peaty	1/8"	See No. 13. (Soak 1 day in hand hot water).
Lapageria 3/5 times per day	HHP	30-90		^	70-75	Peaty	1/8"	See No. 13. Soak for 3 days changing water
Lapeirousia	HBb	30-90		^	55-60	Well drained	1/8"	
Larkspur cause dormancy.	HA	14-21	D		50-55	Peaty	1/16"	See No. 14. (Pre-chill for 2 weeks). High temperatures
Lasthenia	HA	17-21		-		Well drained	1/8"	Best sown in situ Thin to 4".
Lathyrus	HP	20-30		^	55-65	Peaty	1/4"	Soak or chip the seeds. See Nos. 12 or 13.
Lavatera	HA, HB, HP	15-20			70	Peaty	1/16"	
Lavender	HSh	21-90		^	55-65	Well drained	JC	See No. 14. (Pre-chill for 4-6 weeks).
Lawrencellida	HHA	21-30	L		65-75	Well drained	S	
Layia	HA	8-30			70-75	Well drained	1/8"	
Leea	GP	30-90		^	75-80	Well drained	1/8"	See No. 13.

Leontopodium	HP	10-42	L	^	50	Well drained	S	See No. 14. (Pre-chill for 3 weeks).
Leptosiphon	HA	17-21			55-65	Well drained	1/16"	Best sown in situ.
Leptospermum	HHS	30-180		^	60	Peaty	1/16"	
Leptosyne	HA	6-12	L		60-65	Peaty	1/8"	
Leschenaultia	GSh	30-120		^	60-70	Well drained	JC	
Lewisia	HP	365+	L	^	50	Well drained	S	See No. 14. (Pre-chill for 5 weeks).
Liatris	HP	20-25			55-75	Well drained	JC	Reduce soil temperature at night.
Libertia	HP	30-180		^	50	Well drained	1/8"	See No. 6.
Ligularia	HP	14-42		^	55-65	Peaty	S	Keep compost slightly moist.
Lilies	HBb	30-365		^	65-75	Peaty	JC	See No. 10 for more details.
Limnanthes	HA	14-21			60	Well drained	1/16"	Can be sown in situ
Limonium	HP, HHA	10-20	D		65-70	Well drained	JC	Suworowii needs total darkness to germinate.
Linanthus	HA	17-21			-	Well drained	1/8"	Sow outdoors and thin out.
Linaria	HP	10-15			55-60	Well drained	JC	See No. 14. (Pre-chill for 3 weeks).
Linum	HP	20-25			65	Well drained	1/8"	Best sown in situ.
Lisianthus	HHP	10-21	L		68-77	Well drained	S	
Lithops	GP	10-40	L	^	75-80	Well drained	S	
Lobelia months (See No. 14).	HHA, HHP	15-20	L	^	65-75	Well drained	S	Place seed of perennial types in fridge for 3
Lomatia	HHS	30-180		^	60-65	Well drained	1/8"	
Lonas	HA	5-7	D		70	Well drained	JC	Can be sown in situ
Lotus	HHP	14-30		^	55-65	Well drained	JC	Transplant into 3" pots.
Luculia	HHS	30-60		^	55-60	Well drained	JC	
Lunaria	HB	10-14			70	Well drained	1/8"	Can be sown in situ
Lupin	HP	15-60	D	^	55-65	Well drained	1/8"	Soak or chip the seeds. See Nos. 12 or 13.
Lychnis	HP	21-30	L		70	Well drained	S	See No. 12. (pre-chill for 2 weeks).

Lysichitum	HP	30-60		^	55-65	Peaty	1/4"	Keep compost saturated by standing in water.
Lysimachia	HP	30-90		^	55-65	Peaty	S	Keep compost moist.
Lythrum	HP	15-30			65-70	Peaty	JC	
Macropidia	GP	30-90	L		60-65	Peaty	S	See No. 5.
Malope	HA	14-30			65-75	Peaty	JC	See No. 14. (Pre-chill for 3 weeks).
Malva	HP	5-21			70	Peaty	1/16"	
Mandeville	HHS	14-30			65-75	Well drained	JC	Sow in 1/2 sand and 1/2 peat.
Mandragora	HP	50-60			55-60	Peaty	1/8"	
Marigold	HHA	5-14			70-75	Peaty	JC	
Matricaria	HP	5-21	L		65-75	Well drained	S	Reduce soil temperature at night.
Maurandia	HHP	14-21			65-70	Well drained	1/16"	
Meconopsis	HP	14-28		^	55-65	Peaty	S	Keep slightly moist. See also No. 5.
Melia	GT	30-180		^	55	Well drained	1/8"	
Melianthus	HHS	30-180		^	70-75	Peaty	1/16"	
Mentzelia	HA	5-21			55-60	Well drained	JC	
Mertensia	HP	30-60		^	55-60	Well drained	1/16"	See No. 14. (Pre-chill for 3 weeks).
Mesembryanthemum	HHA	15-20	D		65-75	Well drained	S	
Metrosideros	HHS	30-90		^	60-60	Peaty	1/16"	
Mimosa	GP	21-30	L	^	70-75	Well drained	S	See No. 13. (Soak for 20 minutes in almost boiling water).
Mimulus	HHP, HP	7-21	L		70-75	Peaty	S	See No. 14. (Pre-chill for 3 weeks). Then No. 5.
Mina	HHP	20-25			70	Well drained	1/4"	Chip and soak. See Nos. 12 and 13.
Mirabilis	HHA	7-21	L		70	Well drained	S	

MIXTURES: the different types in these groups will all germinate at

different times. Prick out each as it emerges and do not discard

Conifer Trees	HT	30-365		^	55-65	Peaty	JC	See Nos. 6 and 16
Deciduous Trees	HT	30-365		^	55-65	Peaty	JC	See Nos. 6 and 16
Wild Flowers	HA,HP	30-180		^	55-65	Well drained	1/16 ²	See No. 6
Everlasting Fls.	HHA	14-21			65-75	Well drained	1/16 ²	Can be sown in situ
Everlasting Fls.	HP	30-180		^	65-75	Well drained	JC	See No. 6
Exotics	GP	30-180		^	65-75	Peaty	JC	Fls. to attract B/flyies
	HA	14-21			-	Well drained	1/8 ²	Can be sown in situ
Australian Bush	GP	30-180	L	^	75-80	Peaty	S	
Shore/Coastal	HB,HP	30-180		^	55-65	Well drained	JC	
Silver/Grey Fol.	HP,HHA	30-180		^	55-65	Well drained	JC	
Succulents	HHP	30-90	L	^	65-75	Well drained	S	
Moluccella best results.		21-35	L	^	60	Well drained	JC	Pre-chill for 5 days then 40°F temp. night gives
Momordica	HHA	14-21			65-75	Peaty	1/8"	Sow seeds singly in 3' pots.
Monarda	HP	10-40			60-70	Peaty	JC	Reduce soil temperature at night.
Moraea	HHBb	30-90		^	55-60	Well drained	1/8"	
Morina	HP	14-42			50	Peaty	1/16"	
Mucuna	GP	21-90			65-75	Peaty	1/4"	
Muscari	HBb	42-60			60-65	Well drained	1/16"	
Mutisia	H/HHSh	30-90		^	70	Well drained	1/16"	
Myosotidium	H/HHP	30-180		^	65-70	Peaty	1/16"	

Myosotis	HB	14-30	D		65-70	Peaty	S	See No. 5 but keep in total darkness.
Myrrhis	HP	14-42			55-65	Well drained	1/8"	Can be sown in situ
Naranjilla	GP	10-30		^	70-80	Peaty	1/16"	
Nasturtium	HA	7-12			65	Well drained	1/4"	Best sown in situ
Nemesia	HHA	7-21			55-70	Peaty	S	See No. 5.
Nemophila	HA	7-21			55	Well drained	1/16"	Can be sown in situ.
Neperrthes	GP	30-90		^	75-85	Peaty	S	Dont let compost dry out. See also No.5.
Nepeta	HP	7-21			60-70	Well drained	JC	Can be sown in situ.
Nerine polythene bag.	HHBb	14-21			65-70	Well drained	S	Sow immediately, keep moist and place in a
Nerium	GSh	30-90	L	^	65-75	Peaty	S	
Nertera	GP	30-90	D	^	65-70	Well drained	SC	See No. 8.
Nicandra	HA	15-20			70-75	Well drained	JC	
Nicotiana	HHA	10-20	L		70-75	Well drained	S	
Nierembergia	HHP	15-30		^	70-75	Well drained	JC	
Nigella	HA	10-15			65-70	Well drained	1/16"	Best sown in situ. Resents transplanting.
Nolana	HHA	14-30			60-70	Well drained	1/16"	Can be sown in situ.
Nomocharis	HBb	30-180	L	^	45-50	Well drained	JC	See No. 16
Notholirion	H/HHBb	30-180	L	^	45-50	Well drained	JC	See No .16
Ocimum	HA	14-42	L		55-60	Well drained	S	
Oenothera	HP	15-30	L		65-70	Well drained	JC	Reduce soil temperature at night.
Omphalodes	HP	14-42			65-75	Well drained	1/8"	
Onopordon	HP, HB	30-60			55-60	Well drained	1/4"	Can be sown in situ.
Onosma	HP	30-60			50	Well drained	1/16"	

Orchid	GP	90-365	L	^	65-75	Well drained	S	
Orchis	HBb	90-365	L	^	65-75	Well drained	S	
Ornithogalum	GBb	30-180		^	55-60	Peaty	1/16"	See No. 6
Orphium	GSh	21-42	L		65-70	Well drained	S	
Osteospermum	HHA,HP	10-15	L		60-65	Well drained	JC	
Oxalis	HBb	14-60			55-68	Well drained	JC	
Pachypodium	GP	30-180	L	^	65-75	Well drained	S	
Paeonia	HP	365+	L	^	50-60	Well drained	JC	See No. 16. Keep shaded and moist.
Palms	GP	60-180		^	75-80	Peaty	1/4"	See No. 2
Pansy	HP	14-21	D	^	65-75	Well drained	1/16"	See No. 14. (Pre-Chill for 2 Weeks.)
Papaver germination.	HP	10-30	D		55	Well drained	S	Best sown in situ. P. Orientale Needs light for
Paradisea	HP	30-180		^	50	Well drained	1/16"	See No. 6
Parnassia always moist.	HP	30-180		^	55-65	Peaty	S	Stand seed pan in a saucer of water to keep soil
Parochetus	HP	30-90		^	50	Well drained	1/16"	See No. 13.
Passiflora soaking.	HHP	30-365		^	70-85	Peaty	1/4"	See No. 13. Give the seed container an occasional
Pavonia	GSh	30-60		^	75	Peaty	1/16"	
Peanuts germination.	GA	7-21			70-75	Peaty	1/4"	Sow and place inside a polythene bag until
Peltiphyllum always moist.	HP	30-90	L	^	55-60	Peaty	S	Stand seed pan in a saucer of water to keep soil
Penstemon	HP	18-21	L		55-60	Well drained	JC	See No.14
Pentas	GP	25-40			70-75	Peaty	S	See No.5
Peperomia	GP	15-30			70-75	Peaty	S	See No.5
Perilla	HHA	15-30	L		65-75	Peaty	S	

Petrea	GSh	30-60	L		65-75	Peaty	S	
Petunia	HHA	10-21	L		70-75	Peaty	S	F1 hybrids and doubles may need 80°F to germinate.
Phacelia	HA	12-30	D		55-65	Well drained	1/4"	Best sown in situ. Total dark required.
Phaeomeria	GP	30-90		^	80	Well drained	1/8"	
Phaseolus	GP	30-60			65-70	Well drained	1/16"	Chip and soak. See Nos. 12 and 13.
Philodendron	GP	30-120		^	75-80	Peaty	1/16"	
Phlomis	HP	14-42			60	Well drained	JC	
Phlox-Annual	HHA	10-21	D		55-65	Peaty	1/16"	Sow direct into pots as it resents transplanting.
Phlox-Perennial	HHP	25-30	D	^	70	Peaty	1/16"	See No.14. (Pre-chill for 4 weeks).
Phormium	HP	30-180		^	60-65	Peaty	JC	
Phuopsis	HP	30-40	L		50-60	Well drained	S	
Phygelius	HP	10-14			70-75	Well drained	JC	
Physalis	HP	21-30	L		70	Well drained	S	
Physostegia	HP	21-30			55-75	Peaty	JC	Reduce soil temperature at night.
Phyteuma	HP	30-90		^	55-65	Well drained	JC	See No.6
Phytolacca	HP	30-60		^	65-70	Well drained	1/8"	
Pilea	GP	14-60	L	^	65-75	Peaty	S	See No. 5.
Pinguicula	HHP	30-120	L	^	55	Peaty	S	See No. 5. Use a compost 1/2 peat and 1/2 sand.
Pittosporum seconds.	HSh	30-60			55	Well drained	1/16"	Place seeds in a bag and dip in boiling water for few
Platycodon	HP	15-30	L		70	Well drained	S	
Platystemon	HA	14-30			55-65	Well drained	1/16	Sow in situ
Plumbago	GP	25-30			70	Well drained	JC	
Plumeria	GP	30-180		^	65-75	Peaty	1/16"	See No. 13.
Podolepis	HHA	21-30	L		65-70	Well drained	S	
Podophyllum	HP	30-180	L	^	55-60	Peaty	JC	Pre-chill for 3 weeks. Keep compost always moist.

Polemonium	HP	20-25		70	Peaty	1/16"	Reduce soil temperature at night.
Polygala	HSh	30-60	L	60-65	Well drained	JC	
Polygonatum	HP	30-545		50	Well drained	1/16"	See No. 6.
Polygonum	HP, HHA	21-60		70-75	Peaty	1/16"	Do not overwater
Portulaca	HHA	14-21	L	70-85	Well drained	S	
Potentilla	HP	14-30		65-70	Well drained	JC	
Poterium	HP	30-60		50	Well drained	JC	See No. 6.
Primula-Indoors	GA, GP	20-25	L	55-60	Peaty	S	P.Sinensis needs darkness for germination.
Primula-Outdoor	HP	21-40	L	60-65	Peaty	S	See No. 14. (Pre-chill for 3 weeks).
Proboscidia	GA/HHA	15-42		70-75	Peaty	1/4"	
Protea	HHT	30-90		65-75	Peaty	1/4"	Sow immediately.
Prunella	HP	30-60		55-65	Well drained	1/16"	
Psidium		30-60		70-75	Peaty	JC	See No. 13.
Pulmonaria	HP	30-42		60-65	Peaty	JC	
Pulsatilla	HP	30-180		60-70	Well drained	JC	See No. 6. Trim 'tails' off seeds before sowing
Pyrethum	HHA, HP	30-60		55	Well drained	JC	Doubleness of flowers increases in 2nd year.
Pyrola	HSh	30-90	L	55	Peaty	S	
Ramonda	HP	30-60	L	55-60	Well drained	S	
Ranunculus	HP	30-90		50	Well drained	1/16"	See No. 6.
Raoulia	HP	30-90	L	55-60	Well drained	S	
Ratibida	HA/HB/HP	21-42		68-75	Well drained	1/8"	Reduce soil temperature at night.
Rechsteineria	GBb	30-60		70	Well drained	JC	
Rehmannia	H/HHP	21-42	L	60-65	Well drained	JC	
Reseda	HB, HA	5-21	L	70	Well drained	S	Extra care required when transplanting.
Rheum	HP	21-42		60-65	Peaty	1/8"	

Rhodanthe	HHA	14-30		75-80	Well drained	JC	Can be sown in situ
Rhodochiton	HHP	12-42		60-65	Peaty	JC	
Rhodohypoxis	HP	30-90		50	Well drained	JC	Lime free compost required.
Rhoeo	GP	14-60		65-70	Peaty	JC	See No. 13. (Soak for 1/2 hour).
Ricinus	HHA	15-21		70-75	Peaty	1/4"	These seeds are poisonous.
Rochea	HHP	14-42	L	60-70	PBM	S	See No. 5.
Rodgersia	HP	12-60	L	55-60	Peaty	S	
Roscoea	HP	30-365	L	50-55	Well drained	S	See No. 16.
Rothmannia	HHS	30-90		70-75	Peaty	1/8"	See No. 13. (Soak for 5 hours).
Rudbeckia	HHA, HP	5-21	L	70	Peaty	S	Fulgida see No. 14. (Pre-chill for 2 weeks).
Ruellia	HP	30-60		65-75	Peaty	JC	
Ruta	HP	30-42		60-65	Well drained	JC	
Sagina	HP	10-21		55	Well drained	JC	
Saintpaulia	GP	30-60	L	70-75	Peaty	S	See No. 5.
Salpiglossis	HHA	15-30	D	70-75	Peaty	S	
Salvia weeks).	HHA, HA	10-14	L	68-80	Well drained	S	For Patens & Superba see No. 14. (Pre-chill for 3 weeks).
Sandersonia	HHBb	30-90		75	Well drained	1/8"	See No. 13.
Sanguinaria	HP	30-90		50-55	Well drained	1/16"	
Sanguisorba	HP	30-60		50-55	Well drained	S	
Sanvitalia	HA	10-21	L	70	Well drained	S	Take care when transplanting.
Saponaria	HA,HP	10-21	L	70	Well drained	S	See No. 14. (Pre-chill for 3 weeks).
Sarracenia	HP	30-90	L	75-80	Peaty	S	See No. 14. (Pre-chill for 7 days) then No. 5.
Saxifraga	HP	15-60		65-75	Well drained	JC	See No. 6.
Scabiosa	HA	10-15		70-75	Well drained	1/16"	

Schefflera	GSh	20-30		75	Peaty	1/16"	
Schizanthus	GA	7-14	D	60-75	Peaty	S	
Schizopetalon	HHA	6-21		60-65	Well drained	1/16"	
Schizostylis	HBb	30-90		55-60	Well drained	1/16"	
Scilla	HP	30-180		50	Peaty	1/16"	See No. 6.
Scutellaria	HP	14-180		50	Well drained	JC	
Sedum	HP	15-30		50	Well drained	S	See No. 6.
Sempervivum	HP	15-30		70	Well drained	S	
Senecio	HHA	10-21	L	65-75	Well drained	1/16"	
Setcreasia	HHP	30-40		70	Peaty	JC	
Shortia	HP	30-60		60-65	Peaty	S	See No. 14. (Pre-chill for 3 weeks).
Sidalcea	HP	14-42		50	Well drained	1/8"	
Silene	HP	15-20		70	Well drained	JC	Can be sown in situ.
Silybum	HA	14-21		55-60	Well drained	1/8"	Can be sown in situ.
Simmondsia	HHT	14-21		65-70	Well drained	JC	See No. 13. (Soak for 12 hours).
Sinningia	GP	10-21	L	70	Peaty	S	
Sisyrrinchium	HP	30-180		50	Well drained	1/8"	See No. 6.
Smilacena	HP	30-180	L	60-65	Peaty	JC	See No. 14. (Pre-chill for 3 weeks).
Smithiantha	GP	15-40	L	75-77	Peaty	S	Very small seeds
Solanum	GP	15-21	L	70-80	Well drained	S	The plants should be placed outdoors through the summer for pollination.
Soldanella	HP	30-180	L	55-60	Well drained	JC	See No. 14. (Pre-chill for 4 weeks).
Solidago	HP	14-42		50	Well drained	JC	
Sparaxis	HBb	30-90		50-55	Well drained	1/16"	
Sparmannia	GSh	21-30		65-75	Peaty	JC	
Specularia	HA	12-30		-	Well drained	1/16"	Sow outdoors and thin out.

Spigelia	H/HHP	30-60	L		65-70	Well drained	JC	See No. 14. (Pre-chill for 3 weeks).
Stachys side.	HP	15-30	L		70	Well drained	JC	Reduce soil temperature at night. Grow on the dry
Stapelia	GP	7-30	L	^	65-70	Peaty	S	Use 1/2 peat 1/2 sand.
Stenocarpus	HHT	30-90		^	65-75	Well drained	JC	
Stephanotis	GP	15-90		^	75-80	Peaty	1/16"	Keep the compost slightly moist.
Stereospermum	GSh	30-180		^	65-75	Well drained	JC	
Stocks	HHA	10-14	L		55-60	Well drained	S	Can be sown in situ.
Stokesia	HP	25-30			70	Peaty	1/16"	
Strelitzia water daily.	GP	30-180		^	70-75	Sand	S	See No. 1. Soak for up to 3 days changing the
Streptocarpus	GP	15-30	L		55-65	Peaty	S	Very small seeds. See No. 5.
Streptosolon	HHS	30-90		^	55-65	Well drained	1/16"	
Stylomecon	HA	14-21		-		Well drained	1/16"	Sow outdoors and thin out to 6".
Succisa	HP	10-21		^	65-70	Well drained	JC	
Sutherlandia	H/HHS	21-30			60-65	Well drained	1/16"	See No. 13. (Soak for 3 hours).
Sweet Pea cool.	HA	10-20	D		55-65	Peaty	1/4 ²	File or soak seeds. See Nos. 12 and 13. Grow
Symphandra	HP	21-30	L		60-65	Well drained	JC	
Tacca	GP	30-270		^	80-85	Peaty	1/8"	Soak for 72 hours. See No. 13.
Tacitus	HHP	30-90	L	^	50-60	Well drained	S	
Tecophilaea	HBb	30-365		^	50-55	Peaty	1/16"	Keep compost slightly moist.
Tellima	HP	30-90		^	55-60	Well drained	S	See No. 6.
Tephrosia	HP	21-42			65-70	Well drained	JC	Chip and soak. See Nos. 12 and 13.
Tetranema	GP	14-30			65-75	Peaty	JC	
Teucrium	HP	25-30			70	Well drained	S	

Thalictrum	HP	15-21		^	50-60	Well drained	1/8"	
Thermopsis	HP	15-30			70	Well drained	1/16"	File or soak the seeds. See Nos. 12 and 13.
Thunbergia	HHA	14-21		^	70-75	Peaty	JC	Keep the compost slightly moist.
Thymus	HP	15-30	L		55	Peaty	S	See No. 5.
Tiarella	HP	14-90		^	50	Well drained	S	See No. 6.
Tibouchina	GSh	30-90	L	^	60-70	Peaty	S	See No. 5.
Tigridia	H/HHBb	30-90			55-60	Well drained	1/16"	
Tillandsia	GP	30-90	L	^	60-70	Peaty	S	See No. 5.
Tithonia	HHA	5-14	L	^	70-	Well drained	S	
Torenia	GA	15-30	L		70-75	Peaty	S	See No. 5.
Townsendia	HP	30-90		^	60	Well drained	1/16"	See No. 6.
Trachelium	HHP	15-21	L		55-60	Well drained	S	
Trachymene	HHA	15-30	D		70	Well drained	1/16"	Transplant carefully.
Tradescantia	HP	30-40			70	Peaty	JC	Reduce soil temperature at night.
Tree Ferns	HHP	30-120	L	^	65-70	Peaty	S	See No. 4.
Trichosanthos	HHA	14-30			65-75	Peaty	1"	Sow singly in 2' pots.
Tricyrtis	HP	30-90		^	65-70	Well drained	1/8"	Keep compost slightly moist.
Trillium months in the frig.	HP	545+		^	60-70	Well drained	S	See No. 15. Requires two periods of at least 3
Triptaris	HA	5-14			60-65	Well drained	1/8"	Can be sown in situ.
Trollius	HP	30-365		^	50	Well drained	S	See No. 14. (Pre-chill for 2 weeks).
Trop. Speciosum	HP	360-720		^	55-60	Well drained	JC	
Tropaeolum	HA	10-15			55-65	Peaty	1/4"	Can be sown in situ
Tulipa	HBb	60-90		^	50	Well drained	1/8"	See No. 6.
Tunica	HP	14-60		^	50	Well drained	1/16"	See No. 6
Tweedia	GP	30-90		^	75	Well drained	JC	

Urospermum	HP/HB	16-30	L		60-65	Well drained	JC	
Ursinia	HHA	14-30			55-60	Well drained	JC	
Uvularia	HP	30-180		^	55-60	Peaty	JC	
Vallota	HHBb	30-60			65-70	Peaty	1/16"	
Veltheimia	HHBb	30-90		^	55-65	Peaty	1/16"	Keep compost slightly moist
Venidium	HHA	6-14			60-65	Peaty	1/8"	
Veratrum	HP	90-365		^	55-60	Well drained	1/4 ²	See No. 6 and No. 16.
Verbascum	HB,HP	14-30			55-60	Well drained	1/16"	Can be grown in situ
Verbena	HHA,HP	14-90	D	^	65	Well drained	1/16"	Bonariensis & Venosa. See No. 14. (Pre-chill for 2 weeks).
Verbesina	HHA	14-30			60-65	Well drained	1/8"	
Veronica	HP	15-30	L		70	Peaty	JC	Reduce soil temperature at night.
Veronicastrum	HP	21-40	L		55-60	Well drained	JC	
Vicia	HP	21-40			65-70	Well drained	JC	
Vinca	GA	15-30	D	^	70-75	Peaty	1/16"	
Viola	HP	14-21	D	^	65-75	Well drained	1/16"	See No. 14. (Pre-chill for 2 weeks).
Viscaria	HA	10-21			60-65	Well drained	JC	
Vriesia	GP	7-90	L	^	60.7	Peaty	S	See No. 5.
Wahlenbergia	HHA	14-28	L		60-70	Well drained	S	
Wallflower in October.	HB	10-14			65-70	Well drained	1/4"	Sow in reserve bed, prick out 6 ² apart, plant out
Waterlily 85°F, change water twice daily.	GP	14-30						File seed and submerge in water at 75-
Watsonia	HBb	30-180		^	55-65	Well drained	1/8"	Keep the compost slimy moist.
Xeranthemum	HA	10-15			70	Well drained	JC	Transplant carefully.

Xerophyllum	HP	30-60		^	55-60	Peaty	JC	
Yucca	HA	30-365		^	65-75	Well drained	JC	Filamentosa germinates at 55°F.
Zantedeschia	HHP	30-90	L	^	70-80	Peaty	S	See No. 13. Keep compost quite moist.
Zauschneria	H/HHP	30-60	L		60-65	Well drained	JC	
Zea	HHA	5-14			70	Peaty	1/4"	Sow seeds individually in peat pots.
Zinnia	HHA	10-24			75-80	Peaty	1/16"	Sow seeds individually in peat pots.

TREES AND SHRUBS

Abies	HT	21-30	L	^	68-75	Peaty	S	Soak overnight then pre-chill for 21 days. (No. 14).
Acer	HT	30-365+	L	^	65-70	Peaty	S	Soak for 2 days then No. 15. (2 months warm moist, 2 months frig)
Ailanthus	HT	30-90	L	^	50-60	Well drained	S	Chip, soak then No. 14 for 2 weeks.
Akebia	HSh	30-180	L	^	50-60	Peaty	S	See No. 14. (4 weeks).
Albiza	HSh/HT	30-90		^	65-75	Well drained	1/8"	Soak for 12 hours in tepid water before sowing.
Amorpha	HSh	30-120		^	50-60	Well drained	1/16"	Soak for 12 hours in tepid water before sowing.
Andromeda	HSh	30-60	L	^	50-60	Peaty	S	Stand seed pan in a saucer of water to keep soil always moist.
Araucaria	HT	30-60	D		55-60	Peaty	1/4"	Sow immediately
Arbutus	HT	60-90	L	^	65-70	Peaty	S	See No. 14. (6-8 weeks).

Arundinaria always moist.	HSh	30-90	L	^	70	Peaty	JC	Stand seed in a saucer of water to keep the soil
Asterolasia	HSh	30-180		^	55-65	Well drained	1/16"	
Aucuba	HSh	30-90		^	65-70	Well drained	1/8"	
Azalea	HSh	50-90	L	^	55-60	Peaty	S	See No. 5 or No. 6. Keep shaded from direct sun.
Berberis	HSh	60-180	L	^	50-65	Well drained	S	See No. 14. (8 weeks).
Betula	HT	30-90	L	^	65-75	Peaty	S	See No. 14. (10 weeks).
Buddleia	HSh	20-30	L		70-75	Peaty	S	See No. 14. (Pre-chill for 4 weeks).
Bupleurum	HSh	14-60			55-60	Well drained	JC	
Calluna	HSh	30-60	L	^	65-70	Peaty	S	See No. 14. (Pre-chill for 4 weeks).
Calocedrus	HT	30-90	L		50-60	Peaty	JC	See No. 14. (Pre-chill for 4 weeks).
Camellia	HSh	30-90		^	70-75	Peaty	1/4 ²	See No. 13 . May also benefit from No. 14.
Caragana	HSh	14-21	L		65-70	Well drained	S	See No. 13.
Carpinus frig.) or No. 16.	HT	30-365	L	^	65-70	Well drained	S	See No. 15. (1 month at 70°F then 4 months in
Caryopteris	HSh	30-90		^	65-70	Well drained	JC	
Catalpa damping off.	HT	14-30	L	^	60-70	Peaty	S	Give seedlings good ventilation to prevent
Ceanothus	HSh	30-60	L		65-70	Well drained	S	Soak overnight then treat as No. 14 for 2 weeks.
Cedrus weeks.	HT	14-60	L	^	60-65	Well drained	S	Soak for 2-3 hours then treat as No. 14 for 3
Cephalotaxus	HSh	14-60		^	60-65	Peaty	JC	
Cercis 2-3 months.	HSh	30-90	L	^	70-75	Well drained	JC	See No.13. Soak in hand hot water then No. 14 for
Chaenomeles	HSh	70-90	L	^	55-65	Well drained	S	See No. 14. (Pre-chill for 7-10 weeks).
Chamaecyparis	HT, HHT	30-60	L		50-60	Peaty	JC	See No 14. (Pre-chilll for 3 weeks).

Chimonanthus	HSh	63-90	L	^	50-60	Well drained	S	See No. 14. (Pre-chill for 5-8 weeks).
Chionanthus	HSh	30-180	L	^	60-70	Well drained	S	See No. 14. (Pre-chill for 1 month)
Cistus	HSh	7-30	L		65-70	Peaty	S	See No. 5.
Clerodendron	HSh	60-90	L	^	65-70	Well drained	S	See No. 14. (Pre-chill for 4-6 weeks).
Colutea	HSh	7-21			65-70	Well drained	1/16 ²	Chip and soak. See Nos. 12 and 13.
Cordyline	HSh	30-60		^	65-70	Peaty	1/16 ²	
Cornus frig) or No. 16.	HSh	90-730	L	^	50-60	Well drained	S	See No.15. (2 months at 70°F then 3 months in
Coronilla	HSh	30-60			65-75	Well drained	JC	
Cotoneaster frig) or No. 16.	HSh	180-365	L	^	70	Acid Peaty	S	See No.15. (3-5 months at 70°F then 3 months in
Crataegus frig) or No. 16.	HSh	180-730	L	^	50-60	Well drained	S	See No.15. (3-5 months at 70°F then 3 months in
Crinodendron	H/HSh	30-120		^	55-65	Well drained	JC	See No.13. (Soak for 3 hours).
Cryptomeria	HT	30-60		^	55-65	Peaty	1/16 ²	
Cupressus	HT	30-90	L	^	65-75	Peaty	S	See No.14. (Pre-chill for 3 weeks).
Cytisus still small.	HSh	25-30	L		70-75	Well drained	S	See No.13. Transplant to final quarters whilst
Daboecia	HSh	30-120	L	^	55-65	Acid peat	S	Never allow compost to dry out.
Daphne frig)	HSh	150- 365	L	^	50-60	Well drained	S	See No. 15.(2 months at 70°F then 3 months in the
Davidia frig.).	HT	300-365		^	50-65	Peaty	1/4	See No. 15.(3-4 months warm moist, 3-4 months
Decaisnea	HSh	30-180		^	55-60	Well drained	1/4	
Elaeagnus frig.).	HT/HSh	140-180		^	50-65	Well drained	1/16	See No. 15.(4 weeks warm moist, 8-12 weeks
Enkianthus	HSh	25-60	L	^	60-70	Peaty	S	See No. 14. (Pre-chill for 6 weeks).

Erica	HSh	30-60	L	^	65-70	Peaty	S	See No. 14. (Pre-chill for 4 weeks).
Euonymus frig.).	HSh	220-365		^	50-65	Well drained	1/16	See No. 15. (8-12 weeks warm moist, 8-16 weeks
Fagus weeks) or No. 16.	HT	30-365	L	^	50-60	Well drained	JC	Soak overnight then see No. 14 (pre-chill for 6
Forsythia	HSh	30-90			55-65	Well drained	JC	
Fremontodendron	HSh/HSh	30-60			65-70	Well drained	JC	
Fuchsia compost moist.	HSh	21-90	L	^	70-75	Peaty	S	See No. 5. Soak in rain water for 3-4 days. Keep
Gaultheria soils only.	HSh	30-60	L		65-70	Peaty	S	See No. 14. (Pre-chill for 4-10 weeks). Acid
Genista	HSh	14-30			55-65	Well drained	JC	See No. 13.
Gingko	HT	30-60	L	^	70-75	Peaty	1/8	See No. 14. (Pre-chill for 8-10 weeks).
Gleditschia	HT	14-30			65-70	Well drained	JC	Chip and soak for 24 hours. See Nos. 12 and 13.
Gymnocladus Nos. 12 and 13.	HT	30-90		^	65-70	Well drained	1/4	Chip and soak in warm water for 24 hours. See
Hamamelis for 3 months).	HSh	270-365	L	^	50-60	Peaty	1/16	See No.15. (3 months at 70°F then place in frig.
Hebe	HSh	15-30			70	Peaty	JC	
Hibiscus	HSh	30-60		^	70-75	Well drained	1/16	See No.13.
Hippophae	HSh	30-180	L	^	55-65	Well drained	JC	See No.14. (Pre-chill for 14 weeks).
Holodiscus	HSh	30-180		^	60-65	Well drained	S	
Indigofera soak overnight.	HSh	30-60			65-70	Well drained	1/16	Pour nearly boiling water over seed and leave to

Jasminum	HSh	20-30			70-75	Well drained	JC	
Juglans line is at the top.	HT	30-180	L	^	50-60	Peaty	JC	See No. 14. (2-3 weeks). Place so that dividing
Juniperus germination.	HT	30-180	L	^	45-50	Peaty	S	Soak for 24 hours. High temperatures prevent
Kalmia	HSh	30-60	L	^	70	Sandy peat	S	See No. 14. (Pre-chill for 3 months).
Kalmiopsis	HSh	30-60	L		65-70	Acid, sandy peat	S	
Koelreuteria (place in frig. for 3 weeks).	HT	30-60	L	^	55-65	Peaty	JC	See No. 13. (Use boiling water) then No. 14
Kolwitzia weeks).	HT	40-70	L	^	65-70	Well drained	JC	Soak for 24 hours then No. 14. (Pre-chill for 4
Laburnum	HT	30-60			65-70	Well drained	1/16	Chip and soak. See Nos. 12 and 13.
Larix	HT	30-90	L	^	65-75	Peaty	S	See No. 14. (Pre-chill for 1 month).
Laurus month)	HT	40-90	L	^	50-60	Peaty	JC	Soak for 24 hours then No. 14. (Pre-chill 1
Ledum	HSh	30-60	L	^	55-65	Acid peat	S	
Leycesteria	HSh	30-60			60-65	Sandy peat	JC	
Liquidambar the seeds dry out.	HT	14-365	L	^	65-75	Peaty	S	See No. 14. (Pre-chill for 3 months). Don't let
Liriodendron	HT	60-365	L	^	65-75	Peaty	S	See No. 16.
Loiseleuria	HSh	30-60			65-75	Well drained	JC	
Lonicera temp. below 75°F.	HSh	180+	L	^	60-70	Well drained	JC	See No. 14. Place in frig. for 3 months. Keep
Magnolia	HT	120+	L	^	50	Well drained	JC	See No. 14. Place in frig. for 4 months.
Mahonia	HSh	90-120	L	^	50	Peaty	JC	See No. 14. (Pre-chill for 3 weeks).
Malus weeks).	HT	120-365	L	^	50	Peaty	JC	Soak for 24 hours then No. 14. (Pre-chill for 14

Menziesia	HSh	30-60			55	Sandy peat	S	Keep compost uniformly moist.
Morus months).	HT	14-30	L		65-75	Peaty	S	See No. 5. or see No. 14. (Pre-chill for 1-3
Myrtus	HSSH	30-90		^	55-65	Peaty	JC	See No. 13.
Nyssa	HT	90-365	L	^	50	Peaty	S	See No. 14. (Pre-chill for 3 months).
Olea	HHT/HT	30-120		^	65-70	Well drained	1/8"	
Olearia	H/HHSh	30-60	L		65-70	Well drained	S	
Ostrya	HT	365+	L	^	50-60	Well drained	JC	See No. 16.
Paeonia	HSh	270+	L	^	70	Well drained	JC	See No. 15.
Parthenocissus	HSh	60-180	L	^	60-70	Well drained	JC	See No. 13 then 14. (Pre-chill for 6 week).
Paulownia	HT	30-60	L		55-70	Peaty	S	See No. 5
Philadelphus	HSh	30-60			65-70	Well drained	JC	
Phlomis	HSh	30-90		^	65-75	Well drained	JC	
Phyllodoce	HSh	30-60	L		55-65	Peaty	S	
Picea	HT	30-60	L	^	55	Well drained	S	See No. 14. (Pre-chill for 21 days).
Pieris	HSh	30-70	L	^	65-70	Acid Peat	S	See No. 5.
Pinus	HT	30-60	L	^	55-65	Well drained	S	Soak seed, then No 14. (Pre-chill for 6 weeks).
Pittosporum seconds.	HHSh	30-60		^	55	Well drained	1/16"	Place seeds in a bag and dip in boiling water for a few
Prunus	HT	120-365	L	^	65-75	Well drained	1/16"	Soak overnight then see No. 14. (Pre-chill for 4 months).
Pseudotsuga	HT	30-180	L	^	75	Peaty	S	See No. 14. (Pre-chill for 8 weeks).
Ptelia	HSh/HT	80-120			55-60	Well drained	1/8"	See No. 14. (Pre-chill for 3 weeks).
Punica	HSSH	30-40	L		70-75	Well drained	S	See No. 13

Pyracantha	HSh	40-180	L	^	50	Peaty	JC	See No. 14. (Pre-chill for 6 weeks).
Quercus months).	HT	120-365	L	^	50	Peaty	JC	Soak for 24 hours, then No. 14. (Pre-chill for 3
Rhododendron	HSh	50-90	L	^	55-60	Acid Peat	S	See No. 6. Keep shaded from direct sun.
Rhodotypos months at 70°F).	HSh	365+	L	^	55-65	Peaty	JC	See No. 15. (3 months at 70°F, 3 months chill, 3
Rhus	HSh	30-90		^	65-70	Well drained	JC	Chip or soak. See Nos. 12 and 13.
Robinia	HT	7-30	L		65-75	Well drained	S	See No. 13. Soak in hand hot water.
Rosa	HSh	30-365+	L	^	55	Well drained	JC	See No. 16 or No. 14. (Pre-chill for 3 months).
Santolina	HSh	15-30			65-70	Well drained	JC	
Sarcococca	HSh	30-120			55-65	Peaty	JC	
Sequoia	HT	7-60	L	^	65-70	Peaty	S	
Skimmia weeks).	HSh	30-180	L	^	50-60	Acid Peat	S	Soak overnight then No. 14. (Pre-chill for 4
Sophora	HT	10-21			70-85	Well drained	JC	Chip and soak seeds. See Nos. 12 and 13.
Sorbus	HT	120-180	L	^	65-70	Well drained	S	See No. 14. (Pre-chill for 4 months).
Spartium	HSh	7-30			70	Well drained	JC	Chip and soak. See Nos. 12 and 13.
Spiraea	HSh	30-40			55-65	Well drained	JC	
Styrax	HSh	30-90		^	55-65	Well drained	JC	
Syringa	HSh	14-60	L		70	Peaty	S	See No. 14. (Pre-chill for 3 weeks).
Tamarix	HSh	30-50	L		65-70	Peaty	S	See No. 5.
Taxodium	HT	14-60	L		70	Peaty	S	See No. 14. (Pre-chill for 30 days).
Taxus months at 70°F).	HT	365+	L	^	70	Peaty	JC	See No. 15. (3 months at 70°F, 3 months chill, 3

Thuja	HSh	14-60	L	^	55	Peaty	S	See No. 14. (Pre-chill for 4 weeks).
Trachycarpus	HT	40-90	L	^	55-65	Peaty	S	See No. 14. (Pre-chill for 4 weeks).
Tsuga	HT	7-60	L	^	60	Peaty	S	See No. 14. (Pre-chill for 3 months).
Ulex	HSh	14-21			65-75	Well drained	JC	See No. 13.
Vaccinium	HSh	365+	L	^	65-75	Acid Peat	S	See No. 16.
Viburnum months 70°F).	HSh	240-540	L	^	70	Well drained	JC	See No. 15. (3 months 70°F, 3 months chill, 3
Wistaria 13.	HSh	30-60			55-65	Well drained	1/8"	Chip and soak in hand hot water. See Nos. 12 and
Zelkova	HT	14-60	L	^	50-70	Peaty	S	See No. 5 or No. 14. (Pre-chill for 2 weeks).

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