



GARDEN *Secrets*

VOL I. GROWING
FROM SEED



Magic
Garden
Seeds



In general all plant seeds need water, the right temperature and oxygen to germinate successfully. Some varieties however, may have special requirements; for example the seeds may only start germinating once they have been exposed to frost, to light or have been kept in complete darkness. In this compact guide we would like to offer you our support and knowledge, so that you can enjoy the process of growing your own plants from seeds.



Instructions générales de culture en français:

www.magicgardenseeds.fr/guide

Instrucciones de cultivo generales en español:

www.magicgardenseeds.es/guide

Istruzioni generali per la coltivazione in italiano:

www.magicgardenseeds.it/guide

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1. The basic principles of sowing

The sowing process always begins by either starting the germination process indoors, nursing the seeds until they are fit to be transplanted (pre-culture) or sowing the seeds directly outdoors in your garden or your balcony planters. The first method is commonly used to grow temperature-sensitive plants, which in some cases may be relocated outdoors after they have reached a certain size and completed a frost-hardening period.

2. Nurturing seeds indoors or in a greenhouse

The seeds are spread out loosely on top of some potting soil and covered lightly with some extra soil. This layer should then be pat down and watered thoroughly, so that the soil is moist but not soaked with water.

The ideal time to start the germination process

The ideal time to start the germination process depends on the origin of each plant variety and your local weather and climatic conditions. It makes little sense to start the growing process more than two months before the weather allows you to transplant your seedlings outdoors. For example, in most areas in Central Europe, even keen gardeners would be advised not to move their young plants outdoors before the passing of the ‚Ice Saints‘ in mid May, which often coincides with a relapse of temperatures below 0°C. Consequently, the ideal time to start the germination process and the nurturing stage indoors in climatic zones comparable to Central Europe would be in March.

For most plant varieties native to Europe, March is the ideal time to start the germination process, as a pre-culture indoors.

Potting Soil

Commercially available seed substrates or good quality compost are the most suitable medium for your young plants. We



usually achieve good results by using coconut coir substrate for growing from seeds. It has very good water retaining and buffering properties and contains trichoderms, beneficial microorganisms which suppress the growth of fungi cultures. You can either fill small seedling pots with the coconut substrate yourself or use the more convenient coir pellets which, after having been soaked in a little water, swell up to their usable size. We recommend buying coir pellets made from 100% coconut fibre.

Watering

Moisture plays a key part for starting the germination process. Unless otherwise instructed, the potting soil needs to be moist but must never be soaking wet or left with standing water. Here is a quick and easy test to see if your watering is correct. Take some of your watered substrate in one hand and firmly tighten

Coconut substrate is our pre-culture substrate of choice, as it naturally contains trichoderms and other useful microorganisms.

your fist around it. No water should separate from the soil. If you are left with some residual water on your skin, it is a sign that the soil is too wet.

The ideal depth of sowing

The ideal depth of sowing may vary, depending on the size of the individual seed of each plant variety. As a rule of thumb, the loose layer of soil covering the seed ought to be roughly the same as the seed's circumference but never be more than double that size.

However, this is just a useful guideline and not a strict rule. Your confidence will grow with the experience and you will discover that there are even some delicate seeds which do not need covering at all.

The ideal depth of sowing = The seed's circumference

Seeds which need light to germinate

There are plenty of delicate or small sized seeds which require direct exposure to light to trigger the germination process. We therefore tend to cover them very thinly, preferably using fine sand, which offers the advantage of keeping the seed moistened without blocking the light out.

To get the germination process going, the seedling pots may now be placed in a small indoor greenhouse or a propagator, with the lids closed. Ideally, they like to be in a consistently light and warm location and we recommend keeping the pellets moist but not too wet during the entire germination process.

Standing water is one of the most common problems, promoting mould growth. Therefore, to ensure good ventilation, the lids should be opened for a short period each day. Soon after the seedlings emerge, covers and lids can be removed completely. The growth of the seedlings may slow down as a result, but they will grow much stronger and more robust and will respond well

to transplanting. In case you are starting different plant varieties at the same time, it is advisable to use plant label sticks to keep track of the plants' different requirements.

Transplanting vs. starting individual plants in separate pots

Traditional practice is to sow the seeds on trays or plates and to prick (transplant) out the seedlings once they reach a certain size and strength. Pricking out is the process of carefully transferring the young seedlings into small, individual pots. Your seedlings are ready for transplanting once the first pair of 'true leaves' has fully formed (these often already show the leaf characteristics typical for the individual plant variety) above the earlier seed leaves. As an alternative to transplanting, you may of course choose to sow the individual seeds into separate units in small seedling pots or using coir pellets straight away.

As a rule of thumb, even when sowing very small seeds, one should only allocate 1–2 seeds per pot. Arguably this method is more labour intense, however please be aware that some plant varieties such as celeriac, for example, develop a stronger root system after having been pricked out. Many nimble gardeners also make use of the pricking out process as a means of quality control, selecting only the most promising, strong seedlings.

Hardening period

If you grow your seedlings with the intention of eventually relocating them outdoors, you will need to help the young plants adjust to the change of climatic conditions via a hardening (off) period. During this time, once temperatures have stabilized above frost levels, the plant pots ought to be moved outdoors, positioned in a sheltered location, during daytime and moved back indoors for the night. This way, plants will gain strength

'Pricking out' is the process of carefully transferring the young seedlings from their trays into small, individual pots.

and develop resilience, to respond well to being transplanted outdoors soon after.

Transplanting the young plants into the garden

After the hardening period, dig suitable holes in the ground. Carefully extract the plants from their pots and transfer them into the holes. Lightly pat them into the ground with some extra soil and water them afterwards. The ideal planting distance from each other will depend on the plant variety, but if you are unsure, 30 cm is a useful figure as a rough guideline.

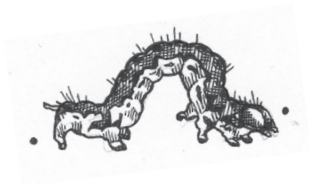
If you grew your seedlings using coir pellets, they simply stay in their individual pellets and can be transferred to the garden as a whole unit. It is not advisable to remove the non-woven material wrapper of the pellets, as this may cause damage to the seedlings' delicate root system. The material will disintegrate naturally once immersed in soil for a while.

3. Direct sowing in your garden

Many plant varieties are well suited for direct sowing outdoors, this applies in particular to most vegetable varieties.

Seedbed

Ideally, loosen the soil and sieve it through where required, to bring it to a fine, crumbly texture. Remove weeds, stones and old root nodes.



The right time for sowing your seeds

The earliest date for starting your plants will depend on the climatic zone you live in and the requirements of the plant varieties you intend to grow. Some vegetable varieties, such as broad beans for example, may already be sown directly outdoors as early as February. Most plant varieties however are only safe to grow outside after the passing of the 'Ice Saints' in mid May. Keen gardeners might take advantage of the use of a cold frame though, or use a protective fleece to lower the risk when starting their seedlings before temperatures have stabilized.

Depth of sowing

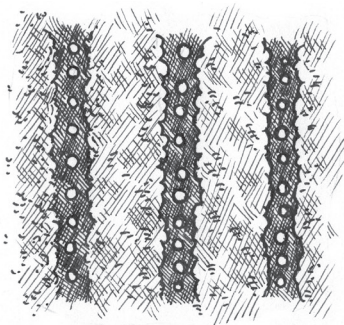
The depth of sowing depends on the size of the seed and as a rule of thumb the coverage with soil should amount to the same measurement, as the diameter of the seed. As a consequence, most seeds are purely spread out on top of the seedbed or merely covered by a thin dusting of well-sifted soil or fine sand. Very often the recommended depth of sowing will range in between 0,5–2 cm.

Sowing techniques

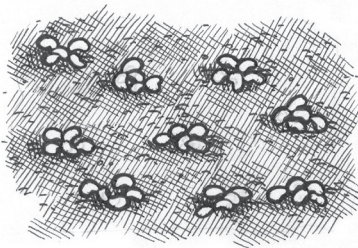
There are three common methods used for sowing seeds directly in the garden: 'station sowing', 'broadcast sowing' and 'sowing in drills'.

When using the '**sowing in drills**' method, dig one or multiple shallow trenches (applying the advised depth of sowing), through the soil and place the seeds in the trench next to each other, in a line according to the spacing recommendations. Cover the seeds with soil and pat them down gently. If compost soil is at hand, you may choose to line your trenches with a thin layer or use it to cover the seeds.

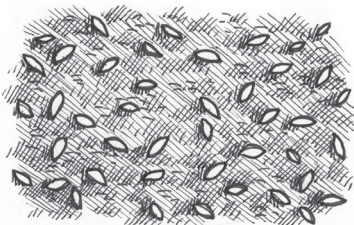
Cold frames
or specialised
protective fleeces
can lower the risk
of frost damage
when starting the
seedlings early.



SOWING IN DRILLS



STATION SOWING



BROADCAST SOWING



For the **'broadcast sowing'** method, seeds are scattered on top of the soil of an allocated patch in the garden and raked in gently to cover them. In this case it is possible to apply a seed mixture. However, please select the plants with care and follow the rules for mixed plant cultivation, as some plants are known for having a suppressing effect on other varieties.

And finally, to grow plants following the **'station sowing'** method, 4 or 5 seeds are sown together in a cluster at their final spacing. This method is commonly used for growing beans amongst others, which develop better with their 'brothers and sisters' close by.

Regardless which of the techniques you are using, always complete the sowing process by gently watering the seedbed, unless you choose to wait for the next rain shower. In predominantly arid climates, it might be necessary to water the seedbed regularly to keep the seeds moistened.

Some gardeners find it useful to cover the seedbed with a hotbed fleece, designed for cold frames, which helps to create a favourable, damp micro-climate and protects the emerging seedlings from light frosts. Once the seedlings emerge, make sure that they have enough space to thrive and develop.

Some careful spacing-out may be required at this stage - although it is generally better to spread out the seeds sufficiently in the first place, during the sowing process. Just remember that every seed you sow has the potential to grow into a handsome plant.

*It is possible to apply a seed mixture of various cultivars when using the **'broadcast sowing'** method.*

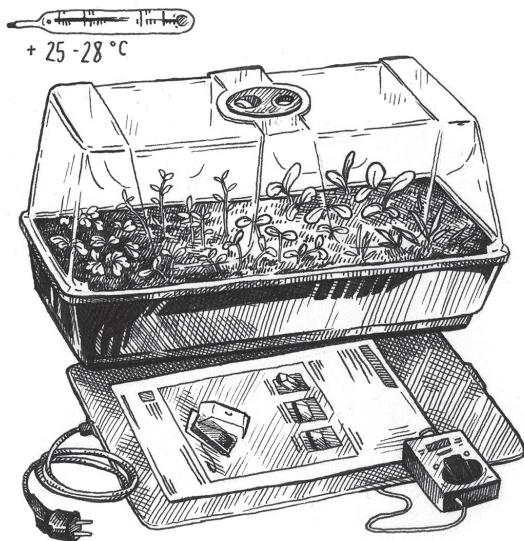
*Always sow seeds according to their **recommended spacing.***

4. Seeds with special germination needs

Some plant varieties have adapted and specialized to certain habitats, which has affected their germination requirements. Their seeds may need exposure to specific 'triggers' and will only germinate under very specific conditions, some of which we would like to bring to your attention in this section.

Heat-loving seeds

Plants from warmer or tropical regions often require temperatures of around +25–28° C to trigger their germination. If this is the case, successful results may be achieved by using a heated mat which can be positioned under a mini indoor greenhouse.



Cold-requiring seeds

Many central European plant seeds require the exposure to cold temperatures to break their dormancy period. This is a smart mechanism created by nature to guarantee that seeds will only start to germinate after the passing of the winter period in springtime. Consequently, the outdoors sowing period for these plants tends to be between November and January.

It is possible however, to recreate this 'low temperature stimulus' artificially, by keeping the seed cultures in the fridge for a set amount of time, with even better germination success rates. For this, the seeds will be mixed with a small quantity of slightly damp sand, perlite, vermiculite or a mix of all three (we highly recommend coco substrate for great results) and put into an airtight container or zipper bag. Airtight zipper bags are easy to use and usually don't require any extra watering.

Keep the seed bags in a consistently warm location at first, at +20°C for 2–4 weeks, before moving them into your fridge. Keep their temperature as low as possible, at least at +5 °C or preferably less. The coldest spot in the fridge is usually at the bottom. Check your seeds weekly and proceed to relocate them into pots as usual, once their germination has started. Some seeds may keep you waiting for up to 6 months before their germination starts, but we encourage you to be patient, it is really worth it!

Using the 'germination bag method', seeds are mixed with a small quantity of slightly damp coconut substrate and sealed in an airtight container or zipper bag, which can then be kept in a consistently cool or warm location, depending on the requirements of the plants you are cultivating.

Slow germinating seeds

There are some plant varieties which will take many months to germinate, e.g. palm trees. Despite nature just following its own time, mould and wet rot could endanger the plant's development. We recommend using the 'zipper bag' method again in this case, for great results.



Following the same process as we did previously with the 'cold-requiring seeds', the slow germinating seeds are added to some damp coconut substrate in a zipper bag. The soil may not be properly wet - as a guide, remind yourself of the level of dampness of a bag of potting soil which has just been cut open. Seal the bag and keep it in a consistently warm place from now on. Don't forget to check your seeds' development regularly.

Seed pre-soaking / disinfection

Organic gardeners know many useful tricks and recipes for speeding up the germination time of their seeds. A widespread method is presoaking the seeds in liquid for up to 12 hours. We heard that various liquid plant extracts have magic powers and that gardeners saw good results from using hot water, milk, camomile essence, garlic essence, campion essence or horsetail tea for pre-soaking.

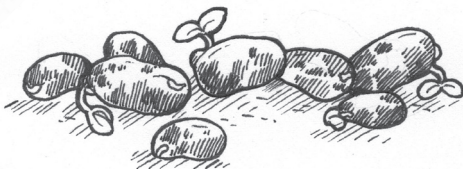
Germination

At Magic Garden Seeds we usually pick valerian blossom essence as our preferred helper and found that pre-soaking seeds in water containing some drops of the essence was very effective. Valerian blossom essence is widely commercially available and not only will the germination time of seeds be shorter but we have learnt from experience that the plants also grow stronger and seem to be more resilient.

Despite differences of opinion over the use of chemical treatments, we do not want to ignore the positive effects of disinfecting pretreatments, in particular for plant seeds which will take several months to germinate – this is often the case with ‘slow germinators’ and ‘cold-requiring seeds’.

Disinfecting such seeds will reduce the danger of mould and rot ruining your efforts. It is also strongly advised to clean seeds of any remaining fruit flesh residues, which sometimes still stick to seeds from fruit trees. As a disinfecting treatment it is safe to use either a 5 % hydrogen peroxide solution or methylated spirit, to rinse the seeds for a few seconds. Afterwards, pour the seeds through a fine sieve and wash them thoroughly with water.

*Organic gardeners have seen good results from **pre-soaking seeds** for up to 12 hours in hot water, milk, camomile essence, garlic essence, campion essence or horsetail tea, in order to speed up germination times.*



5. Additional sowing information particular to some plant species

Chillies

Heat-loving chilli plants need to be started off as a pre-culture indoors, but do well in pots once they reach a certain level of maturity, at which point they may be moved outside, onto your balcony for example. Keeping chillies as indoor pot plants in a sunny spot on your windowsill also works very well.

In slightly warmer regions, chillies may even be transplanted into the garden, preferably to a slightly sheltered location. Gardeners often keep chillies as annual plants, but we recommend protecting them during the winter dormancy period and cultivating them as biennials instead. Very often it takes until the second year for the plants to produce crops in abundance. A good place to keep the



plants during the winter period would be a light but unheated location indoors. They will only need a little water from time to time, but you should keep an eye out for any unwelcome pests. February is the best time for pruning – and, if necessary, repotting your chilli plants, just before the new shoots emerge.

Tomatoes

Tomato plants are commonly started as a pre-culture indoors, before being relocated outside after the last frosts of the ‘Ice Saints’ in mid-May. They grow well in garden patches or as pot plants in sunny locations such as your balcony. Tomato plants grow very well outdoors, but many varieties will benefit from some simple rain protection.

Even a plain, clear tarpaulin sheet stretched out and secured above the plant will create a perfect ‘roof’. The sides ought to remain open to guarantee good air ventilation at all times. These measures are easy to implement and will help to prevent the development of blight. Some tomato varieties grow into impressively tall plants and need extra support to hold them up. Simply tie the shoots to some rods or, if you have one, a trellis.

Tomatoes are plants with high demands for nutrients. We recommend the use of fertilisers regularly, particularly when the tomatoes are cultivated in pots. To secure the best flavour, we recommend watering the plants with clear water for about one week ahead of the estimated harvesting time.

‘Pinching out’ tomato plants refers to the recommended practice of regularly removing the ‘side shoots’ from the ‘main shoots’, particularly if you are growing a large-scale variety. Side shoots start to appear as small sprouting leaves from the axilla of the already fully developed leaves growing off the main shoots.

‘Pinching out’ plants refers to the recommended practice of regularly removing the ‘side shoots’ from the ‘main shoots’ (e.g. tomato plants).

As soon as possible, carefully trap them between your thumb and index finger (as if you are trying to pinch someone) and pluck them off, without abrading the surface of the stem, which could promote the development of blight.

If you don't pinch out your tomato plants they may grow into a dense, bushy form and will be likely to put the energy they need to develop and mature their crops into growing more shoots and leaves instead. You may not see this when growing smaller tomato plant varieties, but it is noticeable with beefsteak tomatoes and varieties with large sized crops, that they do not reach their full potential without being pinched out. Another disappointing side effect of not pinching out may be that the often weaker side shoots gain so much weight that they kink and consequently get cut off from the 'main supply' before crops have had a chance to ripen.

Tobacco

Die Tobacco plants are commonly started as a pre-culture indoors, before being relocated outside, after the last frosts of the 'Ice Saints' in mid-May. They grow well in garden patches or as pot plants in sunny locations, such as your balcony.

If you ensure that your tobacco plants are well supplied with natural light and water, they may develop with incredible speed and grow up to 2m tall within just a few weeks. Particularly when cultivated in pots, we recommend the regular use of fertilisers.

To get the best flavour from the leaves we recommend watering the plants with clear water for about one week ahead of the estimated harvesting time. In the summer, your tobacco plants will start to develop some beautiful pale pink flowers. If you intend to harvest your tobacco leaves to create your own smoking tobacco,

The quality and taste of your tobacco will be improved if you pinch out its flower buds regularly and stop adding fertilisers about one week ahead of the estimated harvesting time.

we recommend you pinch out the flower buds regularly, which will raise the quality and taste of your tobacco.

Choosing the right moment for harvesting tobacco leaves is essential and will influence the flavour of smoking tobacco. A good indication that the tobacco is ready is the leaves starting to change to a light yellow colour.

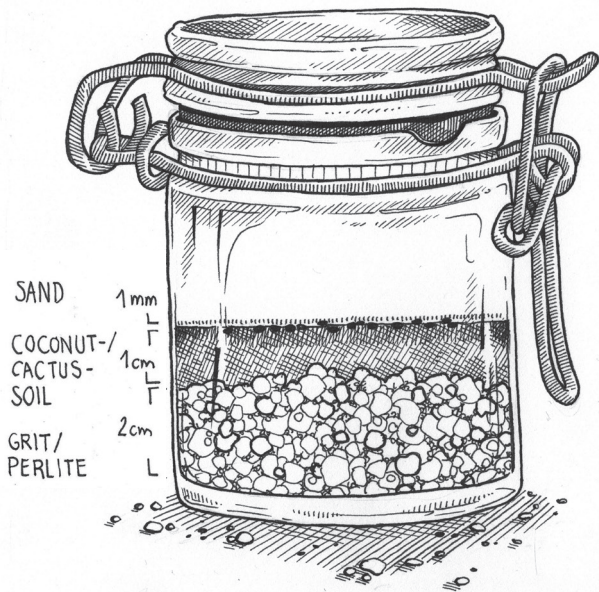
Cigar tobacco tends to be harvested earlier when it is still green and cigarette tobacco always a bit later. Do not harvest the entire plant at once, but instead retrieve the ripened leaves as they mature, one after the other, for a couple of days. The plants themselves will survive the cold winter period if they are kept indoors protected from frost. It is possible to keep tobacco plants in large pots as perennials and with a bit of luck, depending on your tobacco species, the plant may develop plenty of smaller leaves in the second year. This is always worth trying.

Cacti and succulents

Cacti originate from dry habitats, so it may surprise you that their seeds need moisture to germinate successfully. They also need exposure to light. The combination of light and moisture they require is more commonly associated with tropical climates.

A good method for growing your own cacti is to start their cultivation in a clip-top jar for jam or preserves. The rubber seal in the lid creates an airtight environment so that all moisture remains inside the jar, and the jar can be kept in a warm location.

Your emerging seedlings can stay in the jar for their first year, and may not need any additional care during that time. To create the ideal 'seedbed' for your cacti, start by pouring perlite or fine grit into your jar, to create a base layer about 2 cm deep.





Then add another 1cm thickness of coconut substrate or specialist cacti potting soil on top, and pat it down lightly to smooth out the surface. Spread out the seeds thinly and cover them with a very thin layer of fine sand – no thicker than 1mm.

The thinness of the layer is essential, because cacti seeds require light to stimulate their germination process. If you are growing a variety of cacti species, don't forget to add plant labels, and then tightly close the lids of the jars and position them on top of a heated mat, in a well lit location, e.g. a windowsill.

Consistent exposure to natural light is very important for the germination process, but direct, burning sunlight is too aggressive and should be avoided if possible. Under these conditions seedlings should start to emerge after about 14 days. Air, moisture and nutrients from the soil stored inside the jar should be sufficient to keep the seedlings happy at least for their first 6 months.

After 6 months, the seedlings need to be slowly introduced to direct sunlight and less moisture.

After this time, they need to be slowly introduced to a change of climatic conditions, and adapt to direct sunlight and less moisture. It is very easy to do this using a clip-top jar. Over the course of several days, start to open the jar, at first allowing only a narrow gap between lid and jar and for a short period, and then for longer periods, with wider gaps, until you feel confident to remove the lid of the jar completely.

Proceed the same way when training the seedlings to get used to direct sunlight, moving them into the light slowly and for increasing periods. Once you have removed the lid for good, you will need to start supplying your cacti with water. Be careful to keep watering to a minimum, ideally not soaking the soil completely at any stage. Again, the plants need to adapt slowly to

their future in a drier habitat. To start with, in between watering times, only the top surface layer is allowed to dry out. After a while, plants will be able to remain without any added moisture for a couple of days.

During the winter period, cacti need hardly any water and larger species perhaps none at all. This dormancy period during the winter season is particularly important for all flowering cacti. During this period the plants may be kept in a cool but frost-free location. The summer time is when cacti go through a growth period and most gardeners advise adding nutrients to their water during that time, such as algae extract, which is low in nitrogen but contains many enzymes, minerals and other vital substances. The small and slow-growing young cacti could easily stay in a large jar for a couple of years, but to stimulate their growth it is better to transplant them carefully into small pots after their first year.

As a rough guide, the plants should at least have reached a diameter of 5mm before repotting them. Use specialist soil designed for cacti only and from now on, add more nutrient-rich fertilisers to their water. As an alternative to growing cacti in clip-top jars, it is also possible to cultivate them in a mini indoor greenhouse. In this case though, you will need to diligently monitor their moisture levels, and since cacti seedlings are very delicate, it is advisable to use only a hand spray with a soft and gentle setting.

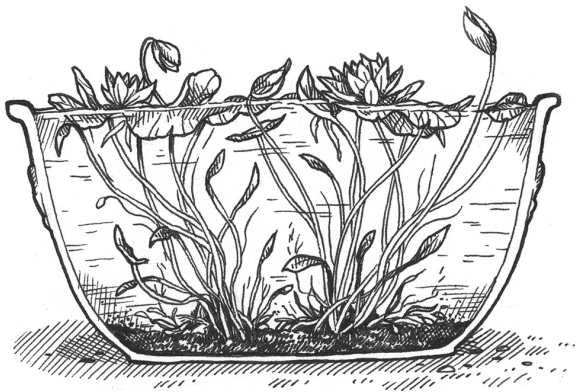
Marsh plants and aquatic plants

Spread out the seeds on top of the potting soil and pat them down lightly into the surface, without covering them with extra soil. The germination process of marsh- and aquatic plants

*After their **first year** it is recommended that the young plants are carefully transplanted into small pots.*

follows the same principles of any other common plant variety, but it is essential to keep the soil moist. One easy way to ensure consistent levels of moisture is to place your seedling pot (which needs to have sufficient amounts of drainage holes) into another, larger container or deep saucer, filled approx. 3cm deep with water (the 'bottom watering method').

Certain aquatic plants, such as pond lilies, may even be kept entirely submerged in water. Once the seedlings are strong enough for pricking out, you can move them to larger pots and continue to keep them indoors with the help of the 'bottom watering method', or move them into the garden if they are perennial species.



Tropical plants e.g. coffee

The pre-culture of these tropical plants may be started at any time of the year, but surprisingly, winter seems to be a rather good choice. The key factor for the successful germination of coffee

seeds is a consistent and correct germination temperature - a minimum of +25 °C.

An electric plant mat in combination with a propagator will help you to create ideal conditions. Coffee plants love being watered with soft water, e.g. rainwater, or any other water source with a high PH level, and ideally, their soil should be kept damp at all times, but not wet. Try not to ever let it dry out completely either. Position your coffee plant in a location with the most natural light. We recommend avoiding a position with direct mid-day sunshine, which is not very good for coffee plants.

Carrots and root vegetables

Carrots, parsley roots and parsnips behave in very similar ways when grown from seed. They are usually biennial plants and develop their edible roots during the first year, and are ready to be harvested in the second year, during which they will also break into their flowering period.

Once the ground has dried up sufficiently, from mid January, root vegetable seeds can be directly sown into the ground outdoors, up until later in June. Best results are achieved using the 'sowing in drills' method, at a recommended depth of sowing of approx. 2 cm.

Carrots are slightly more demanding in that they require a light, sandy, humus-rich soil, which ideally has been prepared and sieved to remove any stones. If these conditions are met, carrot roots thrive and develop well, expanding in both width and depth. It is therefore advisable to prick out your seedlings, so that the stronger plants have enough space for spreading out. Under less ideal conditions there is a risk that roots may split. Unfortunately there are only a few carrot species, such as the

Root vegetable seeds do not need to be pre-cultured indoors and can be sown directly into the ground outdoors in drills.

Carrots are not very competitive plants and therefore need regular weeding and looking after.



resilient 'Oxheart' and the 'Parisian Market', which can be grown in heavier soils and soils with clay content. While pulling out small and weak rejects, watch out for pests, as the delicious scent of the carrots will call unwelcome guests to the table immediately. The young plants are not very competitive and need regular weeding and looking after, right up till their harvesting period. Regular mulching also helps to produce great crops.

6. Plant Care

Fertilising

Seeds contain all the nutrients they need for the developing stages of the first weeks of their plant lives, so potting soil sold for seedlings usually does not contain any nutrients. In our experience though, young plants do benefit from fertilising after a couple of weeks, once their 'true leaves' have fully formed.

We recommend the use of organic algae extract e.g. Alg-A-Mic

(add approx. 1ml fertiliser to 1l water). Algae extract is low in nitrogen but contains many useful enzymes, minerals and other vital substances.

Some of your mature plants might need nutrients at a later stage, but in general it is often enough to provide your garden with nutrients by adding compost when planting new cultivars and by mulching with biodegradable matter.

Mulching

Mulching is a technique essential to natural gardening; it helps prevent soil erosion, moderates soil-temperature fluctuations and keeps weeds in check. Your dug-over garden soil will not often provide the right base for happy and healthy plant growth. It is prone to desiccation, which invites soil erosion and the spread of unwelcome weeds and wild plants.

As a preventive measure, apply a generous layer of mulch (organic matter) onto the surface of your garden patches, in between and around your cultivated plants. Just pick whatever garden mulch is available to you, for example: green garden waste or shredded tree offcuts, organic compost, shredded leaves, straw, shredded cardboard or non-resinous bark mulch. Adding health-promoting herbs such as comfrey or nettle to the mix might also benefit your garden soil quality.

The mulch will break down over time and release nutrients into the ground, valuable to promote humus formation and to improve the habitat for useful microorganisms. Mulching also helps retain soil moisture and suppress weeds. Just keep an eye out in case your choice of mulch attract slugs and snails, and change the mix if that is the case.

*Recommended organic matter for **mulching**: green garden waste or shredded tree offcuts, organic compost, shredded leaves, straw, shredded cardboard or non-resinous bark mulch. Adding health-promoting herbs such as comfrey or nettle to the mix might also benefit your garden soil quality.*

7. Troubleshooting

Seeds won't germinate

For potting or seed cultivation, ideally no residual water should separate from the soil when it is squeezed firmly between your hands.

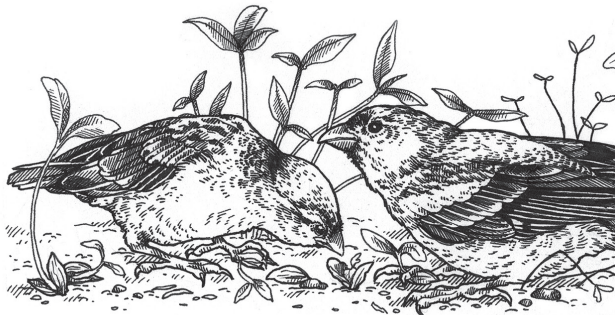
It is possible that you are trying to start off your seeds at a temperature too low to stimulate the germination process. Tropical plant species and chilli plants in particular, but also many vegetable cultivars, require a minimum level of warmth before their germination process is triggered. Below this temperature the seeds remain dormant. A heated mat offers an easy solution to this problem. Another cause might be that the seeds are rotting due to soggy soil. As a rough guide, no residual water should separate from soil squeezed firmly between your hands.

The seedlings keel over and perish

Damping-off is a soil-borne fungal disease and a common cause for seedlings dying prematurely. Excessive moisture in the potting soil may be the culprit, creating a humid microclimate in which fungi can thrive. We advise the use of sterile potting soil, neither too damp, nor too warm.

Insects, birds or small mammals are eating my plants

The only ecosystem-friendly choice really, is the use of plant protection nets or a pest control dome, to physically keep predators away from your plants. These are made from a fine,



lightweight mesh, which completely covers up the plants under attack, without influencing their growth development. The net can be weighted down around the plant with some stones or soil, thus creating a mechanical barrier. Rainwater and air can still pass through the mesh to guarantee the necessary ventilation and water supply.

The seedlings in my garden patch have vanished

In almost all cases, slugs and snails will have eaten your delicious fresh seedlings. Unfortunately, it is very difficult to prevent infestations with slugs and snails in your garden, but to start with, it is helpful to grow your plants in well-balanced, mixed cultivations. A little disorder, broadcast-sowing seed mixes, and avoiding too much symmetry, will definitely make the lives of snails and slugs much harder. In environments



A '**snail fence**' offers reliable protection against any slimy pests. Introducing snail- and slug-eating pets to your household, e.g. **ducks**, would also work wonders.

with a high snail and slug population, mulching may not be the best practice, as it can attract snails, which feed on the organic matter. Protective snail fences may be your last resort, which offer reliable protection against these slimy pests, unless you are open to introducing new snail- and slug-eating pets to your household, e.g. ducks.

My young pre-culture plants stagnate after being transplanted outdoors

A few factors may affect your young plants' development after they are transplanted; location and soil quality are the most obvious. Another not uncommon phenomena might also be the cause for the plants' disappointing growth. If the seedlings were kept in their small seedling pots for too long, the plants respond to their environmental restrictions by halting their development. Then, even after being transplanted, the young plants sadly may never gain the strength to recover.

8. Storing your seeds / Seed durability

Seeds of cultivated plant species remain active for approx. 3-5 years. Wild plant seeds often keep much longer, sometimes even for decades. Tropical plant seeds, by contrast, have a much shorter 'shelf life' and might in some cases only produce seedlings for a few months before expiring. Ideally store seeds for later use in a cool, dry and dark location. Changes of temperature ought to be avoided if possible. If you have access to an airtight glass jar, you could even keep your seeds in the fridge over a longer time period.

9. About us & Service

At Magic Garden Seeds we decided to specialize in providing seeds of unique cultivated plant specimens. As our contribution to the preservation of the faunal biodiversity, we only sell open-pollinated, true-to-type seeds – no hybrid, patented or genetically manipulated varieties. This way, you can save your own seeds, re-sow year after year and share the joy of sustainable gardening with your loved ones.

www.magicgardenseeds.com | www.magicgardenseeds.co.uk

We always try to offer only fresh, viable and high quality seeds. Please note, however, that plant seeds are a natural product and their germination depends on many factors (seed age, proper storage, temperature, irrigation, sowing depth, etc.). We are excited about positive reviews, but if you are not satisfied, please contact us!

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the 1990s, the number of people in the world who are illiterate has increased from 1.2 billion to 1.5 billion.

There are many reasons for this. One is that the population of the world is growing. Another is that the number of people who are illiterate is increasing in many countries, particularly in the developing world. This is because of a number of factors, including a lack of access to education, a lack of resources, and a lack of political will.

One of the main reasons for the increase in illiteracy is the lack of access to education. In many developing countries, there are not enough schools, and the quality of education is often poor. This means that many children do not go to school, and those who do often do not learn to read and write.

Another reason for the increase in illiteracy is the lack of resources. In many developing countries, there is a lack of money to invest in education. This means that there are not enough teachers, and the schools are often overcrowded. This makes it difficult for children to learn.

A third reason for the increase in illiteracy is the lack of political will. In many developing countries, the government does not prioritize education. This means that there is not enough money invested in education, and the quality of education is often poor. This makes it difficult for children to learn.

There are many ways to reduce the number of illiterate people in the world. One way is to increase access to education. This can be done by building more schools, and by improving the quality of education. Another way is to increase resources for education. This can be done by increasing the number of teachers, and by reducing the number of students in each class.

Finally, it is important to have political will to invest in education. This means that the government must prioritize education, and invest the necessary resources. Only then can we hope to reduce the number of illiterate people in the world.

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