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# Sowing techniques, indoor and outdoor glossary



## When to sow

Seed packets will tell you the best time of year to sow seeds. There will usually be an earlier, indoor sowing date and a later, outdoor sowing date. This is due to temperature – both the temperature of the air outside that plants can tolerate and the temperature of the soil, which will effect germination.

Should you get crops off to an early start by sowing indoors? If you have a greenhouse with a regulated temperature then indoor sowings into pots, modules and seed trays enables you to get earlier harvests than sowing directly outside. These sowings are carefully hardened off (see below) and planted out as strong young plants that are more able to resist attack from pests such as slugs and snails. It enables a greater continuity of fresh vegetables as young plants are planted out into gaps created when other vegetables are harvested rather than sowing new seeds into the space. It

also enables you to grow plants that require higher temperatures for germination, such as peppers and chillies, and to grow plants such as melons that need to spend their entire lives in a warm, protected environment.

However, most schools can only provide classroom windowsills, which are usually poorly lit and over heated, resulting in 'leggy', weak plants. These conditions are ok to get seeds to germinate before quickly moving them to outdoor cold frames or unheated grow-houses where they are grown on and later planted out, but on the whole we recommend that schools sow seeds directly into the soil in the garden where they are to grow, which, if done following our advice below, will produce strong, healthy plants that will often catch up earlier, indoor sowings, save on the cost of pots and compost, and reduce the amount of watering required.

## Temperature

One of the first requirements for successful sowing outdoors is that the temperature of the soil is right. Not all seeds require the same temperature to germinate, but few will germinate in cold soils and impatiently sowing seeds early because it's a sunny day does not mean that the soil is warm enough and may account for failures. It is best to wait until the soil warms up. Special soil thermometers can be used but for many crops the germination and growth of weeds in the soil is a sure indication that conditions are favourable. Seed packets will advise you the month to begin sowing, but there are obvious differences between the South and the North of the country, and each

garden has its own particular microclimate, which means there is some flexibility to these suggested dates. Clearly a sunny garden will warm quicker in the spring than a shady one, a light, drier soil will warm quicker than a heavy, wet clay and a south facing, gentle slope will warm quicker than a flat plain. Soils can be artificially warmed by covering them with clothes, fleece or plastic sheeting for a few weeks before sowing. Note that for some crops, such as French beans, soil temperatures below 12 C will lead to poor germination, while for others, such as lettuce, germination is erratic if soil temperatures are over 25°C, especially in the few hours after sowing.

## Water

The amount of water in the soil is critical, as seeds will not germinate nor will seedlings establish if there is insufficient water. If the ground is very dry, water the soil thoroughly a few days before sowing, allowing the soil to dry a little before working it to a good tilth (see below). Individual seed drills

should be watered before sowing seeds, using a can with a fine rose fitted, to prevent the seeds being washed away and the soil from being capped or crusted, which would make it harder for the seedlings to push through.

## Soil Texture

How crumbly your soil is, or the texture of the soil, is crucial and the smaller the seed you are sowing the crumblier your soil needs to be. Such a soil will have been worked until the top few centimetres are of a small particle size, known as a good 'tilth'. If you are planting shrubs and trees into your soil then a fine tilth is wholly unnecessary, but for seeds such as beans it is important and for tiny seeds such as carrots it is critical. How you produce a good tilth depends on the type of soil

you have and how and when you cultivate it (see the advice on 'soil preparation'), but generally it involves digging with forks (ideally in the autumn) and then raking the top few centimetres to remove stones and reduce the size of the soil particles in the spring before the ground is required (multi-tined cultivators do this job well). A final rake on just-damp soil immediately before sowing is then required.

## Sowing depth

Whether you are sowing indoors or out, the depth at which you sow is critical, and many sowings fail because people sow them too deeply. Seeds have their own reserves of nutrients that will provide them with enough energy to reach the light, grow leaves and begin making their own food. If you plant them too deeply they will either run out of

energy before they can break the soil surface or be so weak that they will never make strong plants. Check individual seed packets for sowing depths, but, as a general guide, very fine seed is sown near or on the surface and larger seeds, with greater energy reserves, are sown more deeply.

## Drills

A drill is simply a very shallow trench drawn into the crumbly soil into which seeds are sown, then covered. Using a taut string line just above soil height, or the edge of a straight piece of wood such as a measuring stick, enables you to get a straight drill, making it easier to walk between the rows of crops and easier to know where to weed. It is usually drawn out with the corner of a hoe but this is a technique that takes some practice (to maintain the line and depth). Children can use a trowel against the edge of a piece of wood, or for small seeds simply press a bamboo cane into the soil to the required depth.

Sow fine seeds thinly along the drill, perhaps mixing with sand if they're very fine, which will make a more even distribution possible.

Small seeds, such as lettuce or parsnips, should be sown at intervals along the drill, rather than in a continuous line, which reduces wastage. Either place a measuring stick along the edge of the drill or have a cane cut to the right length to measure between each seed. Sow 3 seeds at each station and thin to leave the strongest plant at a later stage.



### Wide, flat drills

Some crops, such as peas, early carrots, radishes and cut-and-come-again salads, are more suited to sowing into wide drills. Use either a wide draw hoe or a small spade to make the shallow trench about

15 – 20 cm wide and into this sow, for example, peas at carefully measured spacing, or cut-and-come-again salads that are virtually broadcast.

### Larger seeds

Of course, not all seeds are sown into drills - larger seeds that need to be spaced further apart, such as beans, garlic, pumpkins, marrows and sweetcorn are easily planted by children using a dibber, a tool used to make holes in the soil into which seeds are dropped. Markings on the dibber allow you to correctly gauge the sowing depth. Jam jars or bottle cloches can be put over the seed to increase soil moisture and encourage germination. Always sow a few 'spares' to transplant into any gaps, or sow 3 seeds per station and thin to the strongest plant after germination.

Once sown, the seeds are covered with soil using a rake, a trowel or your hand. Rather than watering after sowing, water the drill or planting hole and allow the water to drain before putting in the seed. If you are worried about the soil drying out and subsequent poor germination, then the drill can be covered with newspaper, plastic film or light straw. Once seedlings are visible, any covering must be removed, or the plants will become drawn. However, using spun fibre fleece coverings will allow enough light through for good growth.

### Cut-and-come-again technique

This is a particularly useful technique and a very productive way of growing salad crops in your school. Sow seeds into wide drills fairly densely and do not thin. The crop is cut with a knife or scissors at any stage between a height of 2.5 – 15 cm, depending on the plant, but is always cut above the small seed leaves, leaving about 2.5 cm

of stem. If kept well watered the young plants will re-sprout several times allowing several harvests of baby leaves from one sowing. This is an ideal way of growing oriental greens (such as mizuna, mibuna, pok choi and komatsuna), rocket, spinach, chard, cress and some types of lettuce.

## Thinning

This is the action of removing some seedlings from the row to allow the remaining plants enough space to grow to their optimum size. It can seem harsh and the temptation is to allow plants to grow un-thinned, marvelling at your success in their germination. Left to grow in the face of such competition for resources will only lead to weak plants and poor crops and will perhaps give rise to greater pest and disease problems. Seed packets will give final spacings to which plants should be thinned, depending on the crop and the size at which it is to be harvested. However, raised beds with greater depth of top soil allow crops to be planted at closer distances than on the flat and

these distances can often be reduced. Thinning should be undertaken carefully as it can attract pests (such as the carrot root fly which is attracted to the crop by the smell released from seedling carrots as they are thinned) and it can disturb the roots of neighbouring plants that you wish to remain. Minimise the risk by sowing thinly, or station sowing, to begin with, and water before thinning to reduce the disturbance for other plants. Thinning in the evening reduces the chances of encouraging certain pests. When thinning, plants can be pulled up entirely, or to lessen disturbance they can be nipped off at ground level leaving their roots in the soil.

## Crop covers

Cloches, plastic tunnels or fleece really come into their own in early spring and in the autumn, at which time the added protection they give can extend the growing season. Don't be fooled by sunny days in February that may not reflect the soil temperature. Instead, always warm the soil

for a few weeks with plastic sheeting before those first sowings, and cover the sowings afterwards as frosts are still likely. Remember that crop covers also provide some protection from pests and from strong winds and are useful right through the growing season, particularly for seedlings.

## Indoor sowing and container growing

If growing in containers the compost you use is critical, as not all are the same, but differ widely in their structure and in their nutrient levels. Magazines such as *Gardening Which* and *Gardener's World* often research the performance of composts and advise on the right ones for the job, and the RHS website can provide information on the use of peat. Many crops grown in containers will benefit from the compost being mixed with top soil, and hungry feeders, such as potatoes, tomatoes and the squash family, will respond well to extra feeding.

While fast growing salads can easily be broadcast into the pots in which they are to grow, other crops will benefit from being sown into seed trays or modules using a fine seed compost, and

then being planted out when established into a container filled with a top soil and multi-purpose mix. Always tap the filled trays to settle the compost down, and with seed trays use a pressing board or another seed tray to gently firm the compost down before sowing. Water the compost before sowing, either from beneath by standing them in a sink of water or by using a watering can. Sow the seeds and then cover with sieved, dry compost or vermiculite. Covering the seeds with a plastic cover or some cling film will help keep the compost moist and speed up germination, but remove the cover as soon as seedlings appear. Gentle bottom heat is more important than light in getting seeds to germinate, but they will need to be well lit once they appear or they will become drawn.



## Pricking out

Remember that sowings into seed trays will require pricking out, that is, carefully lifting the seedling from the tray when it has grown its first true leaves (not the first 'seed' leaves that appear). Water the seedlings first, then use a pencil to lift a clump out of the tray and carefully separate one seedling, always holding it by a leaf rather than the stem. This seedling will need to be put into a small pot or a module to grow on until strong enough to be

planted out into its final position. Make a small well in the compost, deep enough to accommodate the roots of the seedling, drop it into place (members of the brassica family respond well to being buried more deeply at this point) and gently draw some loose compost back around it. Allow the water from a fine rose watering can to firm the seedlings in place at the end, rather than pressing down with your fingers.

## Hardening off

Always 'harden off' plants that have been raised indoors as the shock of outside temperatures and the wind can halt growth. This requires seedlings to be gradually acclimatised to outdoor conditions for increasing lengths of time, perhaps by spending

a week being brought out for the day and back indoors at night, and then a week outside in a cold frame or unheated greenhouse before being planted outside.