



# Seed Propagation



## Introduction

The definition of “*propagation*” is to reproduce. Without getting too much into “birds and bees” territory, in the horticultural world this means growing from seeds and cuttings.

Most vegetables that we grow today are grown from bought in seed – usually sourced from a reputable seed supply company. The reasons we use this method can vary but the most common ones are for convenience, reliability (if you buy a packet of seeds from a catalogue etc you can be sure that what will eventually grow will look like the picture on the packet - usually) and also for variety choice.

However, buying seeds these days can be quite expensive especially if you wish to grow some of the rarer and less common varieties. For this reason alone, care should be taken to ensure that you get what you want – strong, healthy seedlings which will mature into wonderful vegetables etc.

To grow successful seedlings it is essential to get the balance between heat, light, water, air and soil correct. Most seeds are planted in springtime when the daylight and heat from the sun is ever increasing which in turn heats up our soil. In our exposed northern situation this can take longer than in the south of England and so planting times may vary from that stated on the packet – keep a close eye on the weather and forecast.

Getting your soil warm enough can be speeded up by planting inside in propagators, hotbeds and even coldframes – all alternatives to a heated greenhouse.



## Top tip !

A good investment would be a soil thermometer if you are planting seeds directly into the soil or seeds which require specific temperatures to germinate (even the hardiest require a soil temperature of at least 7°C whilst others require temperatures as high as 21°C or more).

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## What do I use as a propagator?

There is a confusing array of different kinds, sizes and materials of propagators on the market and the type you use will be a personal choice but may also depend on the space you have available and the quantity of seeds you are planting. Choose the one that best suits your requirements – if the only space you have is your house windowsills, then choose seed trays and propagators which will fit on there.

If you have a large bench available in your polytunnel or greenhouse, you may wish to invest in a “hotbed” – a purpose made area with soil-warming cables or mat, sand/soil etc on which you can place all your seed trays and modules which will give a gentle even warmth to help the germination and establishment of the seedlings. It is very important to have the right balance of heat and light as too much heat in low light conditions will produce weak spindly plants which will topple over at the first “shock” e.g. transplanting or pricking out.

Seeds which require to be planted directly into the soil – such as root vegetables – require the right conditions before they will germinate and mature. Germination will only take place when the conditions are right i.e. soil temperature and light levels, but disaster can lurk around the corner if we are not careful. A mild weather spell (which will encourage the seeds to germinate) can be followed rapidly by a cold spell and frost which can spell disaster for young seedlings.

It is best to resist the temptation to plant out too soon and risk loss or non-germination through frost etc and to do a later planting when growth will be more steady and result in stronger and more viable plants. However, you can “create” better conditions to encourage germination - warming the soil by covering it prior to planting with a black plastic mulch; creating a “propagator” effect by way of cloches (with clear plastic sheeting, horticultural fleece or even re-cycled plastic bottles popped over individual seedlings).

Although the west of Scotland is renowned for its mild climate it is possible for frosty nights to occur up until the end of June and this would be especially true at higher altitudes inland and in the east Highlands, so be prepared and don't remove the “protection” too soon.

## What container should I grow my seeds in?

These days there are a huge choice of containers available for growing seedlings and each grower will have their own preference, maybe even preferring to re-cycle some of the mountain of plastic containers used in our everyday lives. Materials range from rigid plastic through to biodegradable “peat pots” with containers ranging from rectangular seed trays, through individual pots to modular cells. How and in which container you choose to grow your seeds is an individual choice which may be necessitated by quantity, available space etc.



The following is a sample of the range of what is available:-

**Pots** - Can be plastic, clay or biodegradable material. These are fine if you have only a few seeds to sow or large individual ones, but also good if you are growing plants which don't like root disturbance i.e. tomato plants. If you use biodegradable pots you can plant straight into the final growing position and there are no disposal problems.

**Seed Trays** - These are good when a batch of the same seedlings is required. They must be “pricked out” and grown on in individual pots or larger modules to form proper root systems. Seedlings in seed trays are more vulnerable to fungal infection if the tray is over planted.

**Modules** – These can be made from varying qualities of plastic – rigid or lightweight (1 season use only) – as well as biodegradable material. Seeds can be planted into the individual “cells” and grown on in situ until planting out. This causes less root disturbance and you can see at a glance how many seedlings you have. Planting fine seeds to achieve only one plant per cell may pose a problem for larger fingers (use tweezers!). They are available in a wide range of pack and cell sizes.



## Problems

### Why haven't my seeds grown?

Seeds will germinate wherever and whenever the conditions are right i.e. water, warmth, light and air. Sometimes, however careful we may be, problems do arise and the following are a sample of possible reasons for poor or non-germination:-

**Old seeds** - The viability of seed decreases with age, so use the freshest you can – most packets have a “use by” date. Peas and beans can be tested for viability by putting them in a bowl of water – if any float, discard them.

**Compost**- Old seed compost, especially if left outside exposed to the elements may be too cold or wet or even may have become contaminated.

**Soil** - Seeds will not germinate in soil that is too cold or wet or soil which has a high salt content (be careful with soils/sites which are flooded by the sea during winter gales/high tides).

**Erratic Watering** - Make sure the compost is neither too wet nor too dry as this will cause seedlings to either drown or shrivel.

**Draughts** - These can kill seedlings by chilling them. Ensure that air movement is even and if leaving seed trays on a windowsill at night, that there are no cold draughts – ideally cover trays/pots at night.

**Poor light Levels** - Seeds can have very different light requirements – some more some less. Read up on the requirements for the particular seed you are planting – some may need to be covered, some may not.

**Fluctuating Temperature** - Each seed has a range of temperatures it prefers for optimum growth – too little or too much and it will not grow. Again, read the packet or check species requirement.

### What pests and diseases do I need to watch out for?

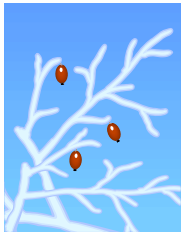
Seedlings, whether cosily inside or hardy outside, are not immune to pests and diseases.

The most common pest of all seedlings is the dreaded **slug**. They can destroy a tray of seedlings in one night, so be vigilant.

**Fungal diseases** can also contribute to seedling loss – “damping off” – and care should be taken that all trays, pots etc are cleaned thoroughly before planting up. Air should also be available to the growing plants as too humid an environment can encourage fungal spores (ensure that vents on propagators are opened regularly etc).

**Overwatering** is as bad as **underwatering** for young seedlings, so getting the balance right is very important. It is better to give a regular, steady source of water rather than to wait until the compost is dried out. If the plants have dried out, rather than soak them with a sudden deluge of water, it is better to increase the supply steadily so that they do not drown. If plants are overwatered, it means that the roots cannot get air which is vital for them to grow.





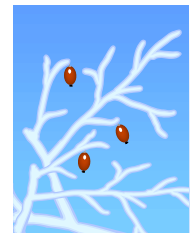
## Beware Jack Frost

Don't be tempted to plant your seeds, tubers or transplants too soon. Frosts are a very real risk in this area up until mid June (and sometimes beyond). Listen to weather forecasts and note the temperatures. If frost is forecast cover any tender plants/seedlings with horticultural fleece.

Don't be too keen to plant your seeds just because it says "Feb – May" on the packet – this is the north and soils take longer to warm up.

Make sure all your transplants and seedlings are hardened off before planting out in their growing positions. If early potato haulms get frosted, don't despair, they will probably recover.

Remember it is better to grow slowly and steadily rather than to rush and lose heart – it also results in stronger, healthier plants.



## Highlands and Islands Local Food Network:

Highlands and Islands Local Food Network (HILFN) is working to link consumers to local food producers, and to encourage the development of community supported agriculture enterprises to provide local demand. Work to do this includes:

- business management advice
- food growing advice
- training courses for farmers, crofters and growers
- a website with over 50 producers, and a range of background information
- a topical newsletter

For further details about HILFN contact: Caroline Vawdrey, Reay House, George St, Cromarty, IV11 8YJ, Tel 01381600525, email [info@hilocalfood.net](mailto:info@hilocalfood.net) or take a look at the website at [www.hilocalfood.net](http://www.hilocalfood.net)