**Asexual propagation**

You may have seen a plant in a friend's garden that you have admired and would like to grow yourself. You could buy the plant at a garden centre or you could propagate it yourself. Propagation is when you produce new plants.

If you use seeds (sexual propagation) to propagate the plant, there is a chance the plants will not be exactly the same as the parent plant. The offspring will not breed true.

To make sure your plant will have the same flowers and growth habit you could take a piece of the plant. Taking a piece of a parent plant to make a new plant is called **asexual propagation**. Asexual propagation includes methods such as taking leaf, root or stem cuttings as well as dividing plants into pieces.

Hebe plants can be successfully propagated from a piece of stem.

The new plant will be exactly like its parent. Identical plants like this are called clones. Many plants for sale at a garden centre will be grown by asexual propagation except for annual flowers and vegetable seedlings.

## Sexual propagation (seed)

*Further information:*[*germination*](http://en.wikipedia.org/wiki/Germination)

[Seeds](http://en.wikipedia.org/wiki/Seed) and [spores](http://en.wikipedia.org/wiki/Spore) can be used for reproduction (through e.g. [sowing](http://en.wikipedia.org/wiki/Sowing)). Seeds are typically produced from [sexual](http://en.wikipedia.org/wiki/Plant_sexuality) reproduction within a species, because [genetic recombination](http://en.wikipedia.org/wiki/Genetic_recombination) has occurred. A plant grown from seeds may have different characteristics from its parents. Some species produce seeds that require special conditions to [germinate](http://en.wikipedia.org/wiki/Germination), such as [cold treatment](http://en.wikipedia.org/wiki/Stratification_(botany)). The seeds of many[Australian plants](http://en.wikipedia.org/wiki/Australian_flora) and plants from southern [Africa](http://en.wikipedia.org/wiki/Africa) and the [American](http://en.wikipedia.org/wiki/United_States) west require smoke or fire to germinate. Some plant species, including many [trees](http://en.wikipedia.org/wiki/Tree) do not produce seeds until they reach maturity, which may take many years. Seeds can be difficult to acquire and some plants do not produce seed at all. Some plants (like certain[[1]](http://en.wikipedia.org/wiki/Plant_propagation" \l "cite_note-1) F1/F2 hybrids and [GMO plants](http://en.wikipedia.org/wiki/Genetic_use_restriction_technology)) may produce seed, but not fertile seed.[[2]](http://en.wikipedia.org/wiki/Plant_propagation#cite_note-2) In certain cases (like with GMO's), this is done to prevent the accidental spreading of these plants (which are generally non-native crops), for example by birds and other animals.

## Asexual propagation

Plants have a number of mechanisms for asexual or [vegetative reproduction](http://en.wikipedia.org/wiki/Vegetative_reproduction). Some of these have been taken advantage of by [horticulturists](http://en.wikipedia.org/wiki/Horticulture) and gardeners to multiply or [clone](http://en.wikipedia.org/wiki/Cloning) plants rapidly. People also use methods that plants do not use, such as [tissue culture](http://en.wikipedia.org/wiki/Tissue_culture) and [grafting](http://en.wikipedia.org/wiki/Grafting). Plants are produced using material from a single parent and as such there is no exchange of genetic material, therefore vegetative propagation methods almost always produce plants that are identical to the parent. Vegetative reproduction uses plants parts such as roots, stems and leaves. In some plants seeds can be produced without fertilization and the seeds contain only the genetic material of the parent plant. Therefore, propagation via asexual seeds or [apomixis](http://en.wikipedia.org/wiki/Apomixis" \o "Apomixis) is asexual reproduction but not [vegetative propagation](http://en.wikipedia.org/wiki/Vegetative_propagation).

[](http://en.wikipedia.org/wiki/File:Cuttings_greenhouse.jpg)

[http://bits.wikimedia.org/static-1.23wmf10/skins/common/images/magnify-clip.png](http://en.wikipedia.org/wiki/File:Cuttings_greenhouse.jpg)

Softwood stemcuttings rooting in a controlled environment

Techniques for vegetative propagation include:

* Air or ground [layering](http://en.wikipedia.org/wiki/Layering)
* [Division](http://en.wikipedia.org/wiki/Division_(horticulture))
* [Grafting](http://en.wikipedia.org/wiki/Grafting) and [bud grafting](http://en.wikipedia.org/wiki/Budding#Plant_multiplication), widely used in [fruit tree propagation](http://en.wikipedia.org/wiki/Fruit_tree_propagation)
* [Micropropagation](http://en.wikipedia.org/wiki/Micropropagation)
* [Stolons](http://en.wikipedia.org/wiki/Stolon) or runners
* [Storage organs](http://en.wikipedia.org/wiki/Storage_organ) such as [bulbs](http://en.wikipedia.org/wiki/Bulb), [corms](http://en.wikipedia.org/wiki/Corm), [tubers](http://en.wikipedia.org/wiki/Tuber) and [rhizomes](http://en.wikipedia.org/wiki/Rhizome)
* [Striking](http://en.wikipedia.org/wiki/Cutting_(plant)) or cuttings
* [Twin-scaling](http://en.wikipedia.org/wiki/Twin-scaling)

## Heated propagator

A heated propagator is a [horticultural](http://en.wikipedia.org/wiki/Horticultural) device to maintain a warm and damp environment for [seeds](http://en.wikipedia.org/wiki/Seed) and [cuttings](http://en.wikipedia.org/wiki/Cutting_(disambiguation)#Botany) to grow in.

This can be in the form of a clear enclosed bin sitting over a hotpad, or even a portable heater pointed at the bin. The key is to keep the moisture in the clear bin, while keeping lighting over the top of it, usually.

## Seed propagation mat

An [electric](http://en.wikipedia.org/wiki/Electric) **seed-propagation mat** is a heated [rubber](http://en.wikipedia.org/wiki/Rubber) mat covered by a metal cage which is used in [gardening](http://en.wikipedia.org/wiki/Gardening). The mats are made so that planters containing [seedlings](http://en.wikipedia.org/wiki/Seedlings) can be placed on top of the metal cage without the risk of starting a [fire](http://en.wikipedia.org/wiki/Fire). In extreme cold, gardeners place a loose plastic cover over the planters/mats which creates a sort of miniature [greenhouse](http://en.wikipedia.org/wiki/Greenhouse). The constant and predictable heat allows people to garden in the winter months when the weather is generally too cold for [seedlings](http://en.wikipedia.org/wiki/Seedlings) to survive naturally. When combined with a lighting system, many plants can be grown indoors using these mats