

Seed Saving

Why save seeds?



- Increase resilience
- Decrease dependency
- Preserve genetic diversity
- Allow plants to adapt to our place and conditions
- Closes the cycle
- Cheaper
- Ensure quality
- To be sure seeds have not been tampered with genetically and have been grown organically
- Deepen our connection with seeds, food and the taiao
- Seeds are a taonga
- So that we know how and can pass on those skills
- Deepen our connection with the past and our ancestors
- Connects us to the future - saving seeds and skills for future generations
- It's our heritage and our right
- It's awesome and humbling and empowering

Food Sovereignty!

Seed Saving

Which seeds?



Seeds that have the characteristics that gardeners need:

- Taste
- Nutrition
- Disease resistant
- Long harvest period
- Open pollinated (not F1 hybrids)
- Suitable for organic systems
- Grown by gardeners for a long time
- Seeds that produce well for you whether they are heritage seeds or not
- Not grown in an industrial system with artificial fertilisers
- Not tampered with genetically
- Not grown with glyphosate, herbicides or pesticides
- Not bred for profit, transportability or long shelf life

Heritage seeds grown organically and regeneratively produce strong seeds and we can know their story and whakapapa

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What are Heritage Seeds?

Something very special happens when you start to grow your own food as you start to connect with the plants that nourish you. You eat the plants grown in your garden and you feed the soil so that you can keep growing healthy plants. The connections that deepen with each growing cycle are more than just with the food but are with the soil and the earth and the moon and the sun and the seasons and the creatures that we share this beautiful place with.

Of course ever since people started to garden that cycle of growing and then eating the food has existed but a huge part of that cycle was saving seed for the next growing season. Without seeds people wouldn't have the means to grow food for the following year so having the skills and knowledge to save seeds was a crucial part of the cycle and is one that is missing for a lot of gardeners today.

With each cycle of growing food and then saving the seeds and then planting them the next year the seeds connect more with the place and the conditions and with the people and then over time become more adapted to that place.

Heritage Seeds

That is what Heritage Seeds are. Traditional, open pollinated seeds that have been grown for generations by gardeners often in a particular place and for a long time (many generations). This means that these varieties have a history with the ordinary gardeners and farmers who grew them. Many of them have stories so that we know their whakapapa.

Seed Saving

Some things to understand



Saving seeds is special and is a responsibility as we are saving them not just for ourselves but also for generations to come. To help this there are some technical things that it is helpful to understand so that we can do it well and to the best of our ability.

Pollination (how plants reproduce)

- Plants either mate with themselves (self pollination), with others (cross pollination) or both.
- We need to know whether plants are self pollinating only or if they cross pollinate.
- We need to know how cross pollination happens – by wind, or by insects.
- Most veg seeds cross pollinate – this influences how/where we plant them

Population size (how many to grow to keep the seed line healthy)

- important in order to maintain genetic diversity and avoid inbreeding depression
- important to ensure pollination
- genetic diversity is important for adaptation

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Things to understand cont.

Isolation

- how we prevent unwanted cross pollination which may come from within our garden, other gardens or wild plants
- can isolate by:
 - distance / location
 - time (needs experience)
 - what we select to grow
 - containment – bagging flowers or isolation tents – not recommended when starting out

Selection / roguing

- making sure we are saving seeds only from plants with the desired traits – healthy and true to type
- **selection** is choosing good plants
- **roguing** is removing plants that are not what we want

Seed life expectancy

- How long a seed will last in optimum storage conditions. This is important to know as it can help you plan what to plant for seed each year.

Seed Saving



Getting started

- Best start small and save seeds of things you are already familiar with growing.
- For each variety you need to understand the crucial info we've just considered in relation to the particular plant.
 - Pollination
 - Isolation requirements
 - Population size
 - Which varieties suit your garden conditions
 - Whether the varieties you are considering are readily available in your area
 - How long the seed will last
- Creating a habitat to support pollinators and beneficial insects helps so don't forget to plant flowers too (and of course you can save seeds from those as well).

Easy plants to start seed saving are:

- Annuals that are completely or mostly self pollinating - eg Beans, Peas, Lettuce, Tomatoes
- Annuals that cross, if that crossing can be prevented -eg Peppers, Cucurbits (pumpkins, cucumbers, melon etc), Maize / corn.

Seed saving

Cucurbitaceae family

Pumpkins, squashes, melons etc



- Grow a minimum of 5 plants for seed saving (more is better)
- Seed lasts for 3 - 4 years
- Are insect pollinated and do cross, only within their group though, not between groups
- Can isolate by distance (but bees fly a long way), by learning how to hand pollinate or by just growing one variety from each group (this is easiest if no others are nearby)

The groups are

- Watermelon (*citrillus lanatus*)
- Rock melon (*cucumis melo*)
- Cucumber (*cucumis sativus*)
- Hard shelled gourds (hue) (*lageneria siceraria*)
- *Cucurbita pepo* (eg kamokamo, courgette, crookneck squash, scallopini)
- *Cucurbita maxima* (eg red kuri, buttercup, crown)
- *Cucurbita moschata* (butternut)

So you can grow one variety from each group unless you have neighbours growing cucurbits from the same group

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Fabaceae family

Beans and peas



- Grow a minimum of 10 plants for seed saving (more is better)
- Seed lasts for 2 - 3 years
- Some kinds are self pollinating so crossing isn't an issue, others do cross within their group but not between groups. More info below

Peas (*Pisum sativum*)

Self pollinating and don't cross

Easy to grow and save seeds from.

Common Beans (climbing or bush green beans)

(*Phaseolus vulgaris*)

- Mostly self pollinating, best not plant different varieties within about 10m of each other as bees do occasionally cross pollinate.
- Some seed catalogues (eg Kings) list these as 'Runner Beans' rather than Climbing Beans. Runner beans are a different group (see below). That's why the latin names are important!

Runner Beans (eg Scarlet Runner)

(*Phaseolus coccineus*)

- Are insect pollinated and do cross with other Runner beans (*coccineus*) but not beans from other groups. Best just grow one type of runner bean.

Seed saving

Fabaceae family

Beans and peas



Broad Beans (*Vicia faba*)

- Self and insect pollinated so do cross
- Isolation distance 150m plus but easiest to grow only one variety if seed saving.

Other beans:

Each of these are almost totally self pollinating with only occasional cross pollination by insects. In addition they will only cross with other varieties within the groups but not between groups. The groups are:

- **Adzuki** - (*Vigna angularis*) Grow well here
- **Chick Peas** - (*Cicer arietinum*) Can be grown here but are not very productive
- **Lima Beans** - (*Phaseolus lunatus*) Short lived perennial which can be grown here. Beautiful beans but not as productive as runner beans
- **Mung bean** - (*Vigna radiata*) Do okay here
- **Soya bean** - (*Glycine max*) Can do well here
- **Yard long beans** - (*Vigna unguiculata*) Very productive climber with long, attractive beans

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Solanaceae family

Tomatoes & peppers



Tomatoes (*Solanum lycopersicum*)

- Mostly self pollinating with crossing rare.
- Grow at least 10 of each variety for seed saving (20 is better)
- Seed lasts for 2- 4 years

Peppers (*Capsicum annum*)

- Can self pollinate but are also cross pollinated by insects
- Sweet peppers and chilli peppers can cross with each other and usually what happens is the sweet pepper gets hotter.
- Grow 5 minimum for seed saving but more (20+) is better
- To prevent crossing it's easiest to just grow one variety or could use insect mesh to keep insects out
- Assume seed will last for 2 years.

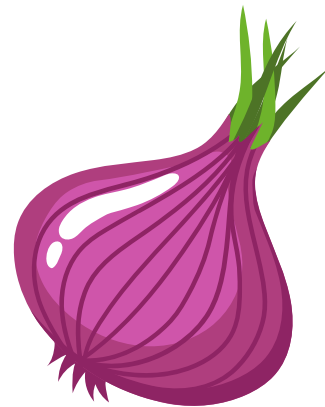
Peppers (*Capsicum pubescens*)

- A species of perennial hot pepper which does not cross with *C. annum*
- Rocoto chilli is *C. pubescens* and available in NZ. There are different colours available which would cross with each other.

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Alliaceae family

Onions, leeks, shallots



Onions - (*Allium cepa*)

- Insect pollinated and do cross pollinate
- Biennial
- Isolate by growing one variety
- Select best in autumn, store over winter, plant again in early spring.
- Grow 20 - 50 for seed.

Leeks - (*Allium ampeloprasum*)

- Insect pollinated and cross
- Biennial
- Isolate by growing one variety
- Need to be large by the autumn to stand through winter to flower in Spring
- Grow 20 - 50 for seed.

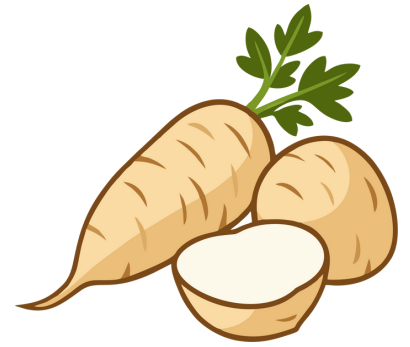
Perennial alliums

There is a range of perennial alliums including shallots, tree onions, potato onions, chives and welsh bunching onions which are propagated from bulbs or by division, not by seed and are an amazing addition to any food garden. Check out our website for more details.

Seed saving

Apiaceae family

Carrots, parsnips, parsley



Carrot – (*Daucus carota*)

- Insect pollinated and crosses readily including with carrot weed. Biennial.
- Isolation can be very difficult if there is lots of carrot weed around. If not isolate by allowing only 1 variety to flower.
- Grow 20 - 50 for seed saving (dig them up, select best, replant for spring).
- Assume seed will last 3 years in less than optimum conditions.

Parsnip - (*Pastinaca sativa*)

- Insect pollinated. Biennial.
- Isolate by just growing one variety.
- To maintain variety strength grow 20 - 50
- Assume seed will last 1 year

Parsley - (*Petroselinum crispum*)

- Insect pollinated. Biennial.
- Isolate by just growing one variety.
- To maintain variety strength grow 20 - 50
- Assume seed will last 2 years

Seed saving

Asteraceae family

Includes lettuces & sunflowers



Lettuce – (*Lactuca sativa*)

- Self pollinating.
- Isolation distance 3 – 6 m really just so that adjacent plants of different varieties don't touch each other and get mixed up when harvesting.
- Grow 5 – 20 for seed saving (but you still eat some leaves while they are growing).
- Assume seed will last 3 years in less than optimum conditions.

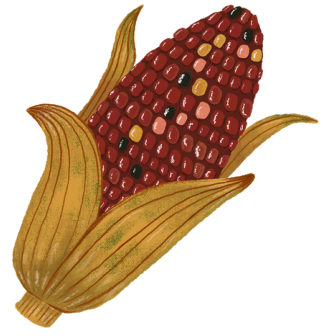
Sunflowers - (*Helianthus annuus*)

- Insect pollination and are very likely to cross pollinate
- If you want to save seed of a particular variety then best grow just that variety.
- To maintain variety strength grow 20
- Assume seed will last 3-4 years

Seed saving

Gramineae family

Includes corn & maize



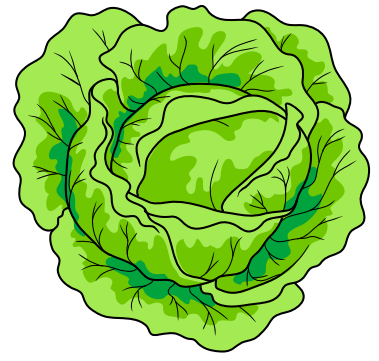
Corn / maize - (*Zea mays*)

- Wind pollinated.
- Self pollinates but can also cross with other varieties.
- Grow around 100 minimum to maintain variety, more if you can
- Isolation distance 250 to 800 metres (depends on the shape of the land and wind direction).
- Can separate blocks of corn within a growing area:
 - In time (sow a quick maturing variety first and then a longer maturing variety a month or so later so hopefully they won't be flowering at the same time)
 - With a barrier (tall things in between eg climbing beans, sunflowers) and not select seeds from the first few rows.
- Expected seed life: 2- 3 years.
- Corn shows crossing in the first year (most plants don't). So if your crop of corn has crossed the crossing can be visible. If growing 2 crops of corn / maize in the same year I'd suggest having quite different colours (eg a yellow maize and a white sweetcorn) so that crossed seeds will show up.

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Brassicaceae family

Cabbage, cauliflowers, broccoli, chinese cabbage, turnips etc



- Brassicas cross pollinate within their groups but not between groups.
- The best way to avoid crossing is to only let one variety flower within each group.
- Assume seed will last 3 - 4 years.

The main groups are:

Cabbages, Cauliflowers, Brussel Sprouts, Kale, Broccoli etc - (*Brassica oleracea*)

- Mostly biennial so need to overwinter to flower
- Population size for variety maintenance 20 – 50

Swede and Russian Kale – (*Brassica napus*)

- Population size for variety maintenance 5 – 25

Chinese Cabbage and Turnips – (*Brassica rapa*)

- Population size for variety maintenance 20 – 50

Ruruhau – (*Brassica juncea*)

- Save seed from 20 to maintain the variety

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Seed saving

Amaranthaceae family

Beetroot and silver beet / chard
(formerly Chenopodiaceae)



Beets and Silver beet / chard – (*Beta vulgaris*)

- Wind pollinated so plant in a block for good pollination.
- Self incompatible flowers so they **only** cross pollinate.
- Biennial so need to overwinter to flower and produce seeds.
- Easiest to isolate by letting only one variety flower.
- Grow 20 - 50 for variety maintenance.
- Prone to inbreeding depression so go for highest figure you can after roguing.
- Assume seed will last 3 - 4 years.

Resource created by
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