



SEED SAVING 101

Starting a life long passion

Super seeds that carry the genetic potential for superior performance in your environment & why seed sovereignty is of the up most importance.

NATIVE BIOTA



NEVILLE PORTAS - NATIVE BIOTA

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Seed Sovereignty



For hundreds of years corporate companies have been attempting to control seed. Their efforts to control food systems has destroyed diversity, simplified the complex and reduced a fantastically intricate web of life to a scientific study that is soon to be outdated.

If there is any resistance to the modern view of the world, it is to be found in seed saving. Without seed, without biodiversity, we have nothing. Being stewards of **open-pollinated seed** is an overtly political act that has been in place for millennia.

The modern commercial seed industry is highly consolidated, with a few multinational corporations controlling a vast majority of the global seed market. Many of these companies develop and patent hybrid or genetically modified (GM) seeds, which often come with restrictions preventing farmers from saving and replanting them. This creates a system of dependency where farmers must purchase new seeds annually, shifting control over a fundamental resource (the genetic basis of food) from the farmer to the corporation.

Depending on your worldview, there may be even more pressing reasons to save seed. The majority of commercially produced seed is not bred or grown in the UK, meaning the seeds are set to fail when brought to our shores and don't hold the many years of genetic data that pertains to our growing environment.

Biodiversity & Genetic Wealth

Each time you save seed, you're keeping unique genetic material alive. This helps prevent the loss of landrace genetics and regionally adapted varieties which buffer against pests, disease, and climate stress.

Food Security & Resilience

Home, Farm or community-saved seeds ensure less vulnerability to supply chain disruptions (as seen during COVID-19 and Brexit).

Soil Health, Plant Health & Ecological Growing

Seeds selected under organic or low-input conditions adapt better to ecological farming systems. They learn to thrive without heavy fertilisers or pesticides, unlike many commercial seeds.

Flavor, Nutrition & Quality

Modern breeding often focuses on yield and uniform appearance. Local seed savers often preserve varieties for taste, nutrition, and cultural use.

Cultural Heritage

Seed saving connects you to generations of growers before you. Many varieties carry cultural stories (passed down families & community-adapted seeds). Preserving them keeps local and ancestral knowledge alive.

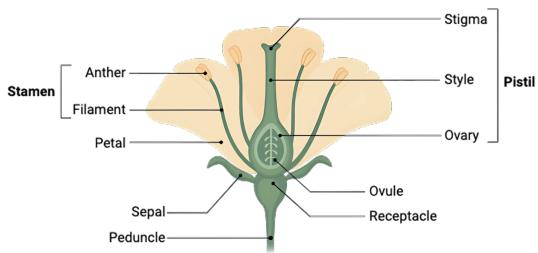
Seed Saving 101

Introduction to plant biology



Angiosperm

Flower Anatomy



Most plants form seed. These are grouped into three main groups.

Naked seed producing plants like Pines and Firs (Gymnosperms),

Spore-bearing plants like Ferns and Algae (Cryptogams) and

Flowering plants which we discuss here (Angiosperms).

Most plants fall into two groups when it comes to length of time before it produces viable seed. **Bi-annuals** (plants that reach seed maturity in two years) and **Annuals** (single year maturity).

An annual crop completes its entire life cycle—from germination to seed production—within a single growing season. Common examples include corn, beans, squash, tomatoes, and broccoli.

When planning for seed harvest, it's important to consider not only whether a plant is annual or biennial but also the number of warm days required for seed maturity. Some crops, such as coriander, may set seed in as little as 100 days, while others, like dry beans, may take 4–5 months or longer to fully mature.

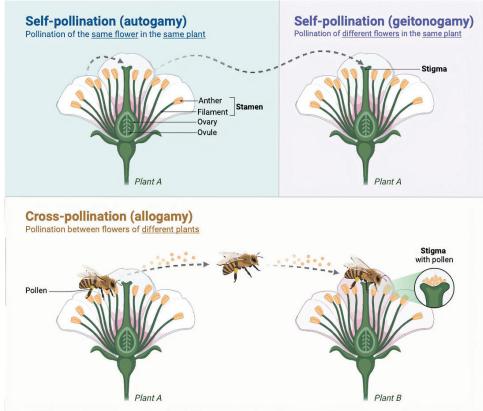
Some biennials will produce seed in their first year if they bolt. This is not viable seed and should not be saved for future use.

For gardeners in regions like ours in the UK that have cooler temperatures and shorter growing seasons, it often takes experimentation to determine which crops will reliably produce quality seed.

Seed Saving 101

Introduction to plant biology

Cont: Inbreeding & Outbreeding



The inbreeding–outbreeding rule explains how different crops handle pollination.

Inbreeding crops (like peas, beans, lettuce, and tomatoes) mostly **self-pollinate**, so you can save seed from just a few plants without losing quality.

Outbreeding crops (like corn, squash, carrots, and brassicas) rely on **cross-pollination**, so saving seed requires larger populations to avoid inbreeding depression and keep plants vigorous.

Inbreeding brings a couple of key benefits :

1. For plants that have thrived in their environment, inbreeding ensures that their offspring will also be well-suited, essentially mirroring the success of the parent plants.
2. It also allows reproduction to occur in different conditions without relying on external factors like wind, insects, or animals for pollen transfer.

Plants known as “strong inbreeders” mainly depend on fertilisation to reproduce. Their flowers have evolved to block pollen from other flowers of the same species. For example, many modern tomato varieties have anthers that form a cone around the pistil, which effectively shields the flower's stigma from outside pollen. In peas, the petals remain closed while the stigma is receptive, ensuring only its own pollen fertilises it. By the time the pea flower opens, it's already fertilised. Other examples of strong inbreeders include lettuce, common beans, and wheat. There are also strong outbreeders and inbetweeners like Broad beans who are inbreeders but have a possibility of 20-30% of the flowers cross pollinated due to bees and wasps.

What to Save



To begin with, it is practical to save seeds at a small-scale, focusing on the seed types that do not require any specific infrastructure or specialised tools. But what are we looking for when it comes to actually saving seed?

When deciding what plants to save seed from you will want to look for traits and growing form that you value. If a plant is big and strong or fruits well those are the vigorous plants to select to save seed from. To avoid these healthy plants from being pollinated by a weak plant we manually remove any weak or diseased specimens that could have the wrong shape or colour. This is called Rouging because we remove the rogues.

In the case of seeds that are contained within fruit like tomatoes or peppers we would choose the biggest and best. We also want to leave the the fruits on the plant for as long as possible to ensure they are fully formed.

Wet-seeded crops (like tomatoes & include cucumbers, and squash) have seeds encased in moist pulp or flesh. These need to be scooped out, and fermented to remove the jelly coating, then rinsed and dried before storage. In short: dry seeds are collected and stored as they are, while wet seeds require cleaning and drying first.

Dry-seeded crops (like beans, peas & lettuce) produce seeds that dry naturally in pods or seed heads on the plant.

To save them, you let the seeds fully mature and dry, then thresh and store them.

In order to save good seed, you need to start with sowing good seed.

This means avoiding mass-produced hybrid seed stock that is grown far from your growing location. Here in the UK, we have a few very good and reputable seed companies and co-ops that steward genetics from which you can save seed and create your own seed collection, library, or community seed bank.

Seed companies:

Real Seeds – Wales.

Vital Seeds – England.

The Seed Co-operative – England.

Seeds of Scotland – Scotland.

Co-ops / Seed saving programmes:

The Incredible Seed Library – Wales.

Garden Organic's Heritage Seed Library – England.

Guildford Seed Bank Initiative – England.

Seed swap events are also popular, so be sure to search for your closest event.

What to Save cont:



Knowing what we now know we are going to look at starting with plants that are open pollinated, self pollinated and annuals or perennials. We are going to avoid bi-annuals at first along with plants that require cross pollination.

Below is a list to give you some ideas of what to start and save and some handy tips of how to save the seed.

1. Beans (Bush & Pole Varieties):

- Why easy: Self-pollinating, large seeds in pods, dry on plant.
- Selection: Choose plants with abundant, healthy pods that are free from disease.
- Harvest: Let pods dry completely on the plant until brittle.

2. Peas (Garden & Snap Varieties):

- Why easy: Similar to beans – self-pollinating, large seeds in pods, dry on plant.
- Selection: Select vigorous plants with full, healthy pods.
- Harvest: Allow pods to become fully dry and papery on the vine.

3. Lettuce:

- Why easy: Mostly self-pollinating, produces many seeds, has a clear "bolting" signal, annual.
- Selection: Let a few healthy, slow-to-bolt plants go to seed.
- Harvest: Collect seeds when the fluffy white "parachutes" appear.

4. Tomatoes:

- Why easy: Self-pollinating, but requires a simple fermentation step, annual.
- Selection: Choose perfectly ripe, disease-free fruits from your best plants.
- Harvest/Process: Fermentation breaks down germination inhibitors and kills pathogens.

5. Peppers (Sweet & Hot Varieties)

- Why easy: Self-pollinating, dry seeds, easy to extract, annual.
- Selection: Select fully ripe, healthy peppers from vigorous plants.
- Harvest: Cut open, scrape seeds, dry.

6. Basil:

- Why easy: Primarily self-pollinating, produces abundant small, dry seeds, annual.
- Selection: Allow a few healthy, vigorous plants to flower and set seed. Choose plants that have a desirable flavour & growth habit.
- Harvest: Once the flower spikes turn brown and dry, gently rub them between your hands over a container to release the small, black seeds. A simple winnowing can separate seeds from chaff.

- 7. Flowers: **Calendula, Marigold, Nasturtium, Zinnia.** Collect dry seed heads, store cool & dry.

Field Notes & Findings



Growing plants that are at their best will give you the best seed.

Adequate spacing, sufficient nutrition and proper care throughout is essential to get viable seed that will be worth keeping for future generations. If you are trying new ideas or are working with less than optimal growing conditions these may not be the best plants to save seed from.

Save seed from the largest populations you can muster in your growing space. Having more of the same plant will ensure genetic diversity and always give better results. In these scenarios roguing is essential and improves the overall quality of seed.

Harvest seed ideally when the sun is out and the dew has left the plant this will avoid carrying any unnecessary moisture to your drying area. Hang seed pods or plants upside down in an area with good ventilation will allow the seeds to.

properly cure and harden before threshing or cleaning happens.

Cleaning and storing your seeds properly will add value to your seed saving. Properly removing any cases or chaff will ensure that when you come to use your seed you wont opt for a packet of bought in seed because of ease of use. Clean seed also has less chance of spoiling as you will be able to see if there are any pests present and that your seed is fully dry.

Drying seed is of up most importance and keeping them in an airtight container will ensure no moisture can get back into your seeds.

Dry and mature seed will be indicated by shades of beige, yellow, brown, black, etc.

For seeds like spinach or peas, cutting them open reveals a starchy inside when adequately dry. Seed pods should shatter easily when rolled between fingers.

Field Notes & Findings

cont:



To determine the germination rate of saved seeds, you can use two tests:

- **Soil Germination Test:** Sow seeds in soil as you would in a greenhouse, placing them about 1/4 inch apart for the test.
- **Paper Roll Test:** Use this method if testing in soil is impractical. Do this by laying out seed on a damp kitchen towel or similar placing another sheet on top.

Do both these tests if you have enough seed and compare the results.

It is important you keep the seed at the right temperature for germination and follow all your best practices as you would when sowing any seed.

Certain seeds, such as spinach, celery, and peas, germinate optimally at cooler temperatures (60-70°F/15-21°C),

whereas eggplants, melons, and peppers thrive in warmer conditions (72-80°F/22-27°C).

While most vegetable seeds are not particular about light exposure during germination, some—like lettuce and celery—favour light, whereas others, including onions and chives, prefer darkness.

If you have enough seed a test of between 50-70 seed is ideal, smaller amounts will be fine and will give you an idea of how many are viable and what to expect when either swapping them or sowing them next season.



Terminology

Landrace – A landrace is a domesticated, locally adapted, often traditional variety of a species of animal or plant that has developed over time, through adaptation to its natural and cultural environment of agriculture and pastoralism, and due to isolation from other populations of the species.

Annuals – plants that grow, flower, set seed, and die all within one season.

Biennials – plants that grow leaves in the first year and produce flowers and seed in the second year before dying.

Perennials – plants that live for several years, flowering and producing seed in more than one season.

Cross-pollination – the transfer of pollen from one plant to another, leading to seed with mixed parentage.

Self-pollination – when a plant's flowers use their own pollen to make seed.

Open-pollinated – plants pollinated naturally (by wind, insects, or self-pollination) that produce seeds true to type if kept isolated from other varieties.

Angiosperm – a type of flowering plant characterised by having its seeds enclosed within an ovary, which develops into a fruit.

Inbreeding – The process of mating between genetically similar parents, resulting in a seed that is genetically closer to its parent or parents.

Outbreeding – The fertilisation of a seed by a parent plant that is genetically distant or unrelated to the recipient plant.

Seed saving

Resources

Online resources

Real seeds -

<https://www.realseeds.co.uk/seedsavinginfo.html>

Vital Seeds -

<https://vitalseeds.co.uk/growing-resources/seed-saving-resources>

The Gaia Foundation / Seed Sovereignty -

<https://www.seedsovereignty.info/resources/seed-saving-resources>



Seeds

101 seed saving guide

Super seeds that carry the genetic potential for superior performance in your environment & why seed sovereignty is of the up most importance.

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