**Seed Saving and Seed Germination**

**By Andrew Barker**

**2/Feb/2014**

**Seed harvesting/saving**

Why should we save seeds?

* Diversity of what’s on the market.
* Price – it’s much cheaper saving our own seed rather than continually buying seeds/seedlings.
* Specific climate/location. Seeds that were grown in Queensland (as many seed suppliers are) find it harder to adapt to our climate down here in South Oz. They need time and generations to acclimate.
* It’s infinite nature. One seed contains a whole plant with thousands (or in some cases millions) of seeds and therefore plants.
* Heirloom seeds are being phased out in favour of hybrids.
* Companies such as Monsanto who are trying to gain a stranglehold on the seed market exist because of us… Because we want our food now, we want seasonal fruits constantly, and we don’t want to take the time to grow it. Therefore these companies don’t exist in a vacuum, they exist because of our want and desire for everything to be served up on a plate, and for it to be now. By taking this power back in our own hands, we relinquish the need for these multinational corporations to have their stranglehold on the market, without needing to protest or oppose anything.

Heirloom vs. Hybrids:

Heirloom seeds are those seeds that have not been crossed with other species of the same family. They have been naturally selected, but not crossed between species. I.e. A pumpkin crossed with a zucchini might make a pumpkin with some traits of that zucchini – such as its ability to have a longer season, or to be mechanically harvested better – and this makes it a hybrid. Whereas in a whole plantation of pumpkins, there may be a few pumpkin plants that exhibit traits that are favourable (such as bigger or tastier pumpkins), and the seed is then saved from these slightly altered plants.

To maintain seed purity, avoid cross-pollination by allowing only one species of a family to flower at a time. For example, if you have multiple Brassicas planted (Cauliflower, Broccoli, and Kale), only allow one species to go to seed at a time. If you have two species from the one family (ie Kale and Cabbage) and you’d like to save seed from both, they either need to be isolated by time (planted at least a few weeks apart) or by isolating the flowers from pollinating insects on consecutive days. If pollinating insects have access to two different species at once, crossing will occur and the seed purity will be compromised; you will end up with hybrids, infertile seeds and/or strange plants.

Save seed from at least ten plants if you can, to maintain genetic diversity. The plants you are saving seed from, try to restrain yourself by harvesting anything from these plants. Ie Leafy greens – the more leaves you leave on the plant, the stronger it is, and the stronger the seed will be. Don’t save seed from insect or climate ravaged plants, as the seeds will be compromised due to the plant diverting energy into defence and repair.

To save and store your seeds, place them in a labelled airtight container (paper envelopes work great, aswell as snaplock bags), in a place where temperatures won’t fluctuate too much. Store them in the dark preferably.

Most plants carry both male and female reproductive organs. The stamen is the male organ, containing a pollen filled anther, which pollinates the receptive stigma. This forms a pollen tube, which grows down to the ovary, which then produces the fruit/seed.



Always save seeds from the healthiest plants. Plants that go to seed early (usually coriander or carrots) are best left as they are, and the later flowering plants are more suitable to save seed from. If you save early bolting coriander, the next generation will also bolt early.

Cucurbits (Squash, Melons, Cucumber, Gourd, Zucchini)

* Heat loving annuals, usually grow as vines or creepers along the ground.
* Insect pollination.
* Will cross-pollinate with each other.
* Must be grown to full maturity before being harvested.
* After being picked, the seeds grow for a further 20 days in the fruit.
* Cut open, remove seeds and dry

Legumes (Beans and Peas)

* Legume flowers are ‘perfect’ in that they self-pollinate, and therefore cannot cross with each other.
* Don’t pick any pods off the plants you want to save seed from.
* Let dry on the plant.

Solanaceae (Tomatoes, Capsicum, Eggplant, Chilli)

* Most solanaceae are perfect and self-pollinating.
* Harvest fully ripe fruit.
* Can be mashed and then seeds dried on newspaper.

Brassicas (Kale, Broccoli, Cauliflower, Cabbage)

* All members cross with one another, so only let a group of one species flower at once.
* Insect pollination.
* Save multiple plants of the one species to maintain genetic diversity.
* Only save from healthy, vigorous plants.
* Let plant go to flower and seeds will form after pollination
* Seed pods will start as green, then mature to a brown/tan colour.
* As the first pods dry, harvest the whole plant and hang inside, in a bag to dry completely.

Alliums (Onions, leeks, garlic, chives)

* Insect pollination
* Biennial (seed to bulb to seed)
* Let seeds mature on stalks

Corn

* Wind pollinated
* Will cross with other varieties of corn if not isolated by time and distance (over 1km)
* Grow in grids of 20+ plants if possible (rather than rows), so that the pollen can fall from tassels on to the cobs below.

Umbelliferae (Celery, carrots, parsnip, fennel, coriander)

* Umbels (rather than flowers) that produce seeds.
* Insect pollinated, and will cross with each species.
* Isolate species by time or distance.
* Collects umbels when they are relatively dry on the seed stalk, dry further in the sun, then collect seed.

Lettuce and other leafy greens

* Crossing between lettuce varieties is minimal, and seed can be saved from many species at the one time.
* Save seed from plants where not many leaves have been harvested.

**Seed germination**

Seed germination requires three main variables: constant moisture, a good medium and the correct temperature.

Moisture – This is where the medium helps in retaining moisture. Something too sandy, and the moisture will leak through, leaving the seed to dry. Most seeds require constant moisture up until germination, and a daily spray will ensure they stay optimal. A small addition of compost or leaf mould is great at retaining moisture. Try to use rain water where possible, because water high in chlorine can adversely affect seed germination.

Medium – This varies between seeds, but something low in organic matter and fertiliser is optimal. Seeds don’t require any external input of energy from the soil or sun until they have their second set of leaves. So over fertilising or composting is a common problem with seed germination. A mix of sieved compost, sand, leaf mould, coir or any other common seed medium will work. Planting into seed trays for fragile seedlings works great, but some seeds require direct sowing, as the roots in certain vegies – if disturbed – will bolt immediately. Some common plants to direct sow are coriander, beans, peas, all the root veggies and corn.

Temperature – Warmer weather veggies such as tomatoes, capsicums and chillies require a minimum of about 15 degrees for germination. So if planted in seed trays outside where night time temps dip below 15 degrees, there will be difficulty propagating these plants. Some sort of greenhouse helps with this, or bringing your seed trays in at night will help too. Highly fluctuating temperatures will disadvantage germination, and this is where a greenhouse helps too; in that it keeps temperatures in a fairly constant range. Specific temperatures for each family of veggies can be found anywhere in a gardening book or on the Internet.