Gone to Seed – Seed Saving Workshop

28th July 2019

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Isolation Techniques

Isolation prevents unwanted cross-pollination and is the main way to keep varieties true to type and limit or eliminate chances of cross-pollination between two varieties of the same species. In order to decide which technique to use, the things you need to consider:

- What will these plants cross with?
- How does this happen? (Wind? Insects?)
- What can I do to control this?

You can manage isolation through several methods:

Distance - as a general rule, plants that primarily self-pollinate (inbreeders) require less isolation distance, while plants that primarily cross-pollinate (outbreeders) require greater distances. Wind-pollinated crops, such as spinach and beets, have very fine, lightweight pollen that is easily carried a great distance on air currents, often making the isolation distance quite long. Insect-pollinated crops may require less distance between varieties than wind-pollinated crops because insects often gather nectar and pollen within limited areas and focus on a particular crop. Examples:

French bean – flowers nearly always self-pollinate, so only need minimal precautions. Even if grown side by side, rarely cross, but best to separate by 3m or other crop in between. Can check in next generation via rogueing.

Broad beans – readily cross-pollinate so best to only grown one variety. Isolation distance of 250m should be ok especially if barriers in way eg. walls and hedges and grow in a block (commercial distance is 1km). Cages not good as insect give much better seed set.

Peas – Very easy to save seed from, usually self-pollinate before flowers open, so isolation distance minimal and risk low (commercial distance is 20m). Separate physically (eg. middle row or other tall plant between) to ensure different varieties don't get mixed up.

Timing - only let one variety flower at a specific time; you can grow lots of varieties to eat but can safely only let one go to seed. Grow one early in season and another later.

Carrot – Pollinated by insects and will readily cross with other carrot varieties and Queen Anne's Lace; minimum distance 0.5km (1km commercially). Best to let only one variety flower each year (NB. will have to use cage if other methods not possible).

Calabrese – Pollinated by insects. These will be only *Brassica oleracea* flowering in late summer, so no need to isolate. If any others nearby (within 1.5km), would need to have isolation cage and add blowflies; plants grow tall so cage would need to be tall.

Swede – Pollinated by insects. Overwintered plants, allowed to flower in spring, only *Brassica napus* to flower at that time (lots of purple sprouting flowering at same time but these will not cross with swede). If any others nearby (within 1.5km), would need to have isolation cage and add blowflies; plants grow tall so cage would need to be tall.

Radish – Pollinated by insects, will readily cross with other radish varieties and with wild radish. Only letting one variety go to seed so no need to isolate. If any others nearby (isolation distance 500m for home use - 1km for commercial growers) would need to have isolation cage and add blowflies.

Containment - physical barrier (eg, bag over individual flower/truss or isolation cage).

Bags - if only want small amount of seed, isolate individual flowers or trusses. Can use fine mesh, horticultural fleece or muslin bag – as long as mesh small enough so that insects can't get through and material lets in light, has enough room and is breathable. Secure around neck with twine before flowers have opened and make sure small insects can't crawl in (cotton wool). Once flowering has finished, mark the flower and truss and remove bag.

Tomatoes – most modern varieties are self-pollinating and are unlikely to cross (stigma located deep inside fused cone of anthers that insects can't enter). However, older varieties and some others eg. potato leaved and currant tomatoes, have stigma exposed, so need to isolate. Check the flowers to make sure. Also, if growing lots of varieties close together, might be good idea to isolate.

Isolation cage – alternatively put barrier around whole plant or groups of plants. Can use be informal (canes and fleece) or you can make custom built cage using net curtains or horticultural mesh. Put on before flowering, make sure insects can't get underneath and there are no holes, needs to be big enough that flowers don't touch the sides. Once flowering is over, remove cage, mark plants and allow seeds to ripen. Works well for self-pollinators or will need to release fly larvae inside the cages to allow for pollination. If want to grow 2 varieties (and no other external source of pollen), can do alternative day caging (as naturally pollinated plants do much better).

Practical session. Making a cage - make mesh into square or rectangular cage, put over canes with wire and string at top and along sides and fix down with stone/earths over the plants. www.realseeds.co.uk/seedsavinginfo.html Could use for aubergine or peppers as can self-pollinate but will also be crossed by insects.

Hand Pollination of Cucurbits

Squash and courgettes have male and female flowers. Select male and female that are just about to open, either bag or keep closed with string. When ready to open, peel off petals from male flower and rub the pollen from stamen over stigma of female flower (can do more than one female flower). Tie or bag up female flower immediately. When flower drops off and fruit starts to swell, remove string or bag. Mark hand pollinated fruit with coloured ribbon. **Practical session.**

Useful references:

https://seedalliance.org/wpcontent/uploads/2010/04/seed_saving_guide.pdf

http://www.realseeds.co.uk/seedsavinginfo.html

https://www.seedsavers.org/learn

Books:

Back Garden Seedsaving by Sue Stickland

Seed to Seed by Suzanne Ashworth