FLOWCHARTS

for



Introduction

When I took Seed School back in 2014 with Bill McDorman, one of the things he said that really stuck in my head was that when it comes to the the future of seed saving, *the preservation of heirloom varieties may well lie in our city and suburbs -- in our gardens*. That as time marches on, these special niche varieties may well be gardened rather than farmed. This inspired me to look for urban solutions.

The *Urban Seed Saving* ebook, together with these flowcharts, is my attempt to find the best information – the best practices – which fit with the realities of our urban and suburban gardening situations. Many of the books about seed saving give recommendations which are more appropriate to farm-scale seed saving, and may be so completely unworkable as to be laughable for city gardeners.

So what are we to do?

in searching for answers, I poured through resources from organizations like Seed Savers Exchange and Organic Seed Alliance, from experts like Suzanne Ashworth and Rowan White. In the pages that follow I have distilled down the smallest recommended populations, the smallest recommended isolation distances, and those isolation techniques which are realistic given our urban conditions.

In addition, I offer suggestions that I've labeled "calculated risk." These are not based upon the work of others, but are based upon my own experience and experimentation, saving seeds for nearly 20 years in the mist of urban Los Angeles. (More about calculated risk later in this document.)

If you are looking for best practices from a major organization, then you can skip over those that are labeled "calculated risk." If, however, you wish to join in the experiments, to try to expand our urban and suburban horizons, come on aboard and join me.

Joanne Poyourow Los Angeles September 2019

TAKE A TOUR

Here's what is in the flowcharts:



- (1) Vegetable name and botanic name
- (2) Type of urban garden you're working with
- (3) **Population** size
- (4) Recommended Isolation Techniques
- (5) Results
- (A) Plant family
- (B) "Traffic light" symbol as estimate of difficulty

THE PATH THROUGH THE FLOWCHART

Questions (1) and (2) help you identify which flowchart to use.

The **Population** question (3) determines your options.

Once you've found the right flowchart, follow the arrows to possible **Isolation Techniques**, and from there to the Results you will attain.



DIFFICULTY LEVEL

Here's an easy way to get started ...

If you are new to seedsaving ... start with the little "traffic light" icon. It tells you how easy it might be to get good seed from this type of plant.



For Seedsavers of all skill levels!

If you are new to the seedsaving aspect of gardening, consider trying one of the EASY plants. These plants don't require special techniques to get good seed.

If you are looking for something a bit more challenging, perhaps you've attended some seed education classes and you want to try out some of the cool techniques, look for MODERATE plants. You can get good seed by using a simple technique.

If you have a bit of experience under your belt, you might try your hand at one of the COMPLEX plants. To get good seed, you have to use a more complex technique, or pay significant attention to your seed-growing environment.

Note: The traffic light icon isn't about how difficult it might be to *grow* this type of plant. Rather, it's about the complexity level of *getting good seed* from them.





A CLEAR PATH TO FOLLOW

Your seedsaving quality depends on

- **1)** Identification: know your source material. Know the "parents" of your seeds. Get your seed from quality sources which tell you the botanic name of the plant.
- **2)** Location: some urban gardens provide greater shelter for seedsaving, others are more exposed to potential crossbreeding. Follow the flowchart that applies to the kind of garden you have. (More about types of urban gardens later in this document.
- **3) Population:** to carry the most diverse genes to the next generation, you need several plants as "parents" of your seeds. The flowcharts tell you how many plants you should grow.
- **4) Isolation techniques**: For a few types of plants, you can stand back and let Nature take its course. For other types of plants, gardeners need to run interference (think "barrier methods of birth control") in order to assure purity of the resulting seed. The flowcharts tell you what are best practices, and what is possible in urban gardens.

INTERPRET YOUR RESULTS

The seed you produce is valuable! The trick is, knowing what its best purpose is.

VARIETY preservation

If you have the right situation, you might be able to do **VARIETAL** preservation. An example of this is you being able to assure other gardeners that the seed you produced will in fact grow a "Kabocha squash", rather than some kind of mixed-up squash.

A lot of seedsaving literature focuses on varietal preservation. As a result, we seedsavers might make the mistake of giving too much emphasis to "purity." But there are other great reasons for us to save seed!

SPECIES collection

Even if you cannot do what it takes to keep a specific variety pure, you likely can produce good, or even great, **SPECIES** level seed. An example of this is being able to assure other gardeners that the seed you produced will grow a great sunflower mix.

Species-level seed is great when you're working with school children. It's great when you're trying to feed people -- for instance charity gardens or subsistence gardens.

Species-level seed is important when you're developing localized mixes, sometimes called a *landrace*. Landraces hold great potential to feed people during radical climate changes.

The flowcharts give two sets of RESULTS blocks, so that you know what quality your seed is for both Varietal and for Species-level purposes.



Grow Your Own Supply

A Seed Library can use the flowcharts to decide how to use the seed received from members.

- Library's Collection: If seed comes from a member who has followed best practices for population and isolation to get seed for Varietal preservation, you know that you can add it into your Library's collection with confidence to declare that seed to be the Variety that the seedsaving member said it was.
- If a member didn't follow best practices for population and isolation, the flowcharts will tell you. Then you'll know not to put that seed into your Library's collection and declare it to be something it is not.

But you still might be able to use that seed ...

- **Public distribution**: If your Library does outreach to the community for example giving away free seed at fairs, or giving seed to elementary schools Species-level collections may be perfectly appropriate for this purpose. You can, with all confidence, say "this seed will grow great chard leaves."
- By accepting GOOD and GREAT Species-level seed from members, you *empower newcomers* of all skill levels to participate in the excitement of the seedsaving process.



Better Quality Seed

The Seed Librarian who is doing seed intake can track what isolation methods a seedsaver used to save seed.

Because the isolation methods are labeled (Method A, Method B, etc) this information can be maintained with your seed records.

(4) What isolation techniques did you use?				
Isolation by 800 ft from next blossoming variety (SSE)	caging, 2 male + 4 female plants per cage (SA)			No special techniques
Method A	Method B	Method C	Method D	Method E

The isolation techniques listed on the flowchart are Best Practices from organizations like Seed Savers Exchange, and experts like Suzanne Ashworth. All techniques are footnoted.

Seedsaver Education

The Flowcharts can be used at education sessions to encourage members to use those isolation methods which are recommended Best Practices.

With the Flowcharts' visual format, library members can see what results occur when they use recommended techniques (rather than "no special techniques").

Seedsavers can also use the flowcharts for planning, for selecting their isolation techniques. By selecting the desired result from the bottom of the chart, and *reading the flowchart backward* (from bottom toward top), a seedsaver can discover which isolation techniques + population sizes are likely to gain them the results they desire.



Community Grow-Out projects

One of the problems we have with seedsaving in urban and suburban conditions is *limited Population size*: growing too few plants to pass on adequate diversity of genetic information.

But when working within a Seed Library, we have an excellent opportunity to overcome this issue.

Community Grow-Outs are a project where several seedsavers decide to grow the same variety in their individual gardens. The seedsavers protect the seeds by following recommended isolation techniques. The seeds resulting from the project are then mixed together to bring all that diversity back into future generations of plants.

Community Grow-Outs can be fun, and a way for seedsavers to feel the connection and purposefulness of working together.

(4) What isolation techniques did you use?				
Isolation by 800 ft from next blossoming variety (SSE)	caging, 2 male + 4 female plants per cage (SA)		caging, 2 male + 4 female plants per cage (SA) + merge with seed of other seedsavers through Community Grow Out	No special techniques
Method A	Method B	Method C	Method D	Method E

In the flowcharts, when Population size is a problem, Community Grow-Outs have been recommended as a possible solution to gain better quality seed.

About URBAN GARDENS



The physical shape of our city may be helpful in seedsaving.

For these flowcharts, gardens are grouped in three general types:

- Shared gardens where multiple people are growing in the same area. Examples: community garden, school garden, allotment.
- Exposed gardens where the buildings of the city may offer slight protection from crosspollination. Example: a house on a streetcorner, without walls to enclose the garden, with prevailing winds blowing into the garden.
- Enclosed garden where the buildings and walls surrounding the garden enclose it fully, and offer a windbreak from the prevailing winds.

In a *shared garden*, you can presume that pollen is everywhere. You will likely need to use physical barrier methods in order to maintain varietal purity. It is possible, however, that you might be able to get very nice species-level collections.

In an *enclosed garden*, the buildings and walls offer an extra barrier. They may help you overcome some (but probably not all) distance-isolation requirements.

An exposed garden is in-between, and needs to be evaluated for risk on a case-by-case basis.

Be sure to follow the flowchart that is applicable to your type of garden.



About CALCULATED RISK

The suggestions labeled CALCULATED RISK utilize the physique of the city itself as potential barriers to cross-pollination.

Our cities, together with our suburbs, are increasingly a place where most "gardens" are patios, pool decks, and mow-blow-and-go lawns, together with border shrubs which are unlikely to cross with vegetable plants. Additionally, buildings themselves can provide blocks to wind drift.

There are no books from experts which guide us down this path. It's a path wide open to discovery and exploration. I offer you my thoughts and experience so that you can try them and expand upon them.

Assumptions within the "calculated risk" suggestions:

- Buildings that surround a garden may slow or stop wind drift of pollen.
- Tall buildings that surround a garden may alter the path of pollinating insects.
- For plant species for which experts recommended a long isolation distance (which implies lightweight pollen), I presumed that buildings-as-barriers would be inadequate to overcome cross-pollination. For plant species with shorter recommended isolations (examples: 160ft, 50ft, implying heavier pollen), the blockade of buildings might be enough to do the trick.
- Most neighbor gardens within a city aren't growing vegetable plants to the flowering stage.
- Some vegetable plants are rarely grown, or are rarely grown through the flowering stage.

Cautions within the "calculated risk" suggestions:

- Buildings that only partially surround a garden might not be adequate to slow or stop wind drift of pollen or the path of pollinating insects.
- Not knowing the content of neighbor gardens may expose your plants to potential cross pollination.
- Close proximity to wildlands or parks that contain wild/native/naturalized species may introduce potential cross pollination.
- Certain vegetable plants are grown through the flowering stage in order to drive the edible portion (examples: corn, broccoli). That means if a neighbor gardener grows them at all, they will introduce pollen into the neighborhood.
- If a neighbor garden has a vegetable garden, certain vegetable plants are very common for people to grow (examples: corn, sunflowers). Because they are so common, we have to assume our air is full of their pollen.
- "Calculated risk" suggestions presume that you are following ALL of the bullet points within the calculated risk scenario, not just some of them.

How good is the seed derived from "calculated risk"?

- In the flow charts, I only gave the rating of GREAT seed to seed that was derived through the best practices laid down by seedsaving experts.
- "Calculated risk" scenarios give us an excellent way to derive SPECIES level collections.





Tip: start to learn the botanic names and plant families of your vegetable

plants. It will help you in seedsaving, to understand what potentially crosses with what.

About TAXONOMY

Botanists have a formal system for classifying plants. You probably learned about it in middle school.

For vegetable gardeners and seedsavers, the important parts of this system are Family, Species, and Variety.

Family:

Learning which plants are in which plant family can give you a jumpstart on things like: Which pests like to eat this plant? How does this plant typically reproduce? What do its flowers look like?

Within a Family, you may encounter several Genus. And within a given Genus there might be several Species.

Species:

When you see a plant's "Latin name," that's its Genus and Species called out. This information is important, because plants of the same species can exchange pollen and produce seed.

Example: Beta vulgaris Genus = Beta Species = vulgaris

Variety:

Within a vegetable plant Species, there are likely several (or many) Varieties. In a plant catalog, the Variety would be the name on each of the gorgeous pictures.

Example: on the tomato page, "Atomic Grape" and "Sungold" are different varieties. But they are both the same Genus/Species.

Strain:

Sometimes, within a Variety, there might be special adaptations that make one lineage of plants behave a little differently than another. For instance, plants grown generation-after-generation in a high-heat environment will develop heat-tolerance (thus, a heat-tolerant Strain), whereas offspring of the same Variety grown in a cooler, wetter place might have different growing preferences.

And there you have some of the fun of seedsaving!























Key to Abbreviations

Sources

(SA) = Suzanne Ashworth, *Seed to Seed*, 2002 Plant family information given in flowcharts is per SA

(SSE) = Seed Savers Exchange, *The Seed Garden*, edited by Lee Buttala and Shanyn Siegel, 2015 Population sizes used in flowcharts are per SSE

(CALCULATED RISK) = calculated risk to get "good" seed for varietal preservation or species collection, based upon using city buildings as physical barriers. More about calculated risk elsewhere in this document.

Notes

Note B = Buildings-as-Barriers used to dissuade insects and overcome the isolation distances recommended by experts. Seed quality estimate downgraded -1. Difficulty = COMPLEX

Note C = scenario follows the best practices recommended by experts, with the only deviation being that Community Grow Outs are used to overcome Population issues. Seed quality estimate downgraded -0.5 Difficulty = Moderate.

For explanation of terminology and isolation techniques as they pertain to growing and seed-saving within city conditions, see *Urban Seed Saving* by Joanne Poyourow – available through www.Change-Making.com If you are an officer of a Seed Library, and wish to get a copy of this ebook for free, please email Joanne.Poyourow@gmail.com with your request.

Further Reading

Urban Seed Saving, by Joanne Poyourow Ebook

Other gardening publications by the author include:

VegGarden365 app Runs on web browser -or- Android devices What to plant when in a year-round growing season like Southern California's

Vegetable Crop Rotation Wheel Garden planner Rotate your crops in a year-round growing season while enjoying abundant harvests

The Secrets of Soil Building Ebook How to build living soil – without a lot of gardener time, or "stuff" to purchase

Food from a Flowerpot Ebook How to grow abundant harvests of food on your patio, balcony, or rental property

All available via https://www.change-making.com/publications/

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