

SEED PRODUCTION

FOR SALE AND ON-FARM USE

By Daniel Brisebois and Emily Board

Seed saving brings our farm further down the path to sustainability. Flowering seed crops surround our vegetable fields. The seed crops buzz with pollinators and beneficial insects, and provide refuge for toads and birds. We have created a more complex agro-ecosystem by growing some of our own seed.

On-farm seed production also serves an economic function on our farm. Of the \$3000-worth of seeds we use on the farm, roughly one-sixth comes from our own production (this doesn't include our own garlic and potato seed stock that we also use). Seeds are also a cash crop—we sell them to other seed companies, and to vegetable growers through our seed catalogue, at Seedy Saturdays and at farmers' markets.

Growing our own seed expands the range of vegetable varieties we grow and sell. In some cases, it provides us with organic seed that might not be available commercially. This is especially true for hot peppers, snap beans and cut flowers. In other cases, there are varieties that have been unreliable or periodically unavailable from seed companies. For example, a strain of red oak leaf lettuce that fits our particular growing conditions was, suddenly, no longer available from our seed suppliers—fortunately, we had some of the old seed left to grow out.

Sample seed yields from

La ferme coopérative Tourne-Sol

Crop Yield from 10-ft (3-m) row

| | |
|-----------|---------------------|
| Tomatoes | 0.5–2 oz (14–57 g) |
| Brassicas | 4–16 oz (113–454 g) |
| Beans | 1 lb (454 g) |
| Lettuce* | 1–4 oz (28–113 g) |
| Beets | 1 lb (454 g) |

*I have read of growers getting much higher lettuce seed yields.

—Daniel Brisebois

Like all aspects of farming, there is a learning curve to growing good seed, although for many growers, their first seed crop is the byproduct of an over-mature vegetable (bolted lettuce or old string beans). We had to learn:

- 1) when to plant seed crops;
- 2) how to maintain isolation between varieties; and
- 3) how much time seed saving takes.

The importance of the last two considerations is influenced by whether you are simply growing seed for yourself or if you intend to sell it.

When to plant

To get good seed, you need to establish good plants. This usually means planting a seed crop as early as possible to give it the maximum amount of growing time. We plant our seed crops in two waves. At the end of April, we plant the frost-hardy crops (brassicas, lettuce, biennial roots stored in the cold room, some flowers and peas). At the end of May, after our last frost date, we plant our tender seed crops (tomatoes, peppers, beans, cucurbits and tender cut flowers).

We use the following rotation for the areas of our farm dedicated to seed crops:

Year 1: frost-hardy seed crops

Year 2: cover crop

Year 3: tender seed crops

Year 4: cover crop.

Alternating seed crops and cover crops gives us a chance to flush out volunteers from seeds that may have shattered (dropped) from a previous crop. It also ensures four years before the same crop family is planted in the same spot again.

Isolation

The greatest fear for new seed growers is what will cross with what. This is an important concern.

Plants are either **selfers** (predominantly self-pollinated) or **crossers** (cross-pollinated). Beans, lettuce and nightshade crops are the main selfers. Most other crops are crossers. For these crops, pollen from one plant can be carried by insects or wind and cross-pollinate a plant of another variety.

Seed growing adds challenge, fun and learning to the growing season.

Selfers can be grown very close together with very low rates of cross-pollination. If you are saving seed for your own use, you can save seed from selfers grown side by side without much worry. You may, and probably will, see some crossing but in only a few plants out of hundreds. On most CSA and market farms, this diversity can be tolerated—a different coloured or shaped tomato can be a pleasant novelty. If you particularly like the

La ferme coopérative Tourne-Sol is a 45-minute drive west of Montreal in Les Cèdres, Quebec. The farm is a workers' cooperative made up of five farmers and two apprentices. It is in zone 5b with the last spring frosts in mid-May and killing frosts beginning mid-October. The farm is on twelve acres (5 ha) rented from neighbouring organic grain producers. In any year, six acres are under a wide range of vegetables, flowers, herbs and seed crops (all certified organic by Ecocert Canada) and three acres are in cover crops. Tourne-Sol distributes its wares through a 250-share CSA, a farmers' market and on-line seed catalogue. For more information, see www.fermetournesol.qc.ca.

Annual planning for seed production

During the winter, we speak to our commercial seed buyers to find out how much they would like of different varieties. We estimate the needs for our own catalogue and field use, and then we evaluate how much seed we have.

We've been keeping track of our seed yields for crop families and specific varieties under our field management. Using these yield estimates, we decide how much space to devote to each crop. Seed production is much more erratic than vegetable growing, so always add a 25–40% safety factor to your harvest needs.

new tomato, save the seed from it. If you don't, avoid that plant when saving seed. Crossing between hot peppers and sweet peppers is the one exception to the rule. No one wants a sweet bland jalapeno, and they definitely don't want a knock-your-socks-off spicy bell pepper!

When selling seed, any degree of cross-pollination is undesirable. Customers expect a variety to be true to type. It is your responsibility to make sure this happens. We plant selfer varieties fifty to two hundred feet (15–60 m) apart to avoid cross-pollination. Between varieties of the same species, we plant flowering crops (such as buckwheat or cut flowers) to distract insects that are tempted to cross-pollinate our selfers.

Crossers are much trickier. Growing the same crosser species side by side will result in high levels of cross-pollination. More than a quarter or even a half of your crop may be end up crossed. This can be fun in a home garden but can have an economic impact on a market vegetable crop. Most people want their zucchini to be zucchini and their pumpkins to be pumpkins. 'Pumpkinis' and 'zuchkins' are not as popular. For most crossers, an isolation distance of 200–600 feet (60–180 m) will keep crossing to an acceptable minimum for on-farm use (that still might not be far enough for cucurbits and runner beans).

Commercial seed crops of crossers need to be well isolated. On large farms, separate fields can provide proper isolation distances, but for smaller farms, this might not be possible.

On our farm we usually only grow one crosser of each vegetable species per year. The one exception to this is brassica greens. We isolate varieties of *Brassica rapa* (such as tat soi, mizuna, turnips and rapini) in time, rather than space. We overwinter one brassica green, which flowers in early June, and

spring-plant another brassica green, which flowers early July. These different flowering dates keep the crops from crossing. We also grow both brassica greens in separate parts of the farm to keep any lingering flowers from crossing with any early flowers from the other variety.

Another way to maintain diversity is to save seed from different varieties every year and store them. We grow out five to six different tomatoes a year for three years. On the fourth year, we start growing them out again. This way we can have 15–18 varieties on hand. We have noticed that some older seed lots have great germination after five to six years but we prefer to renew our stock more frequently.



Kale and brassica greens in flower in mid-May.



This lettuce has bolted and is ready to set seed.

Labour requirements

Seed saving can take as much time as you want. Again, the time it takes depends on your goals. Growing tomatoes or peppers for on-farm use can be as simple as saving seeds from your market crops. A couple times in the season, walk your row and collect fruit from the plants that interest you. Try to collect seed from several plants to broaden the genetic base.

A crop that is destined primarily for seed will take more time. These seed crops need more weeding and management. Ignoring a seed crop will create a difficult mess. Harvesting portions of the plant (e.g. a few lettuce or mustard leaves before they bolt, or a few green beans) provides an additional source of revenue and an incentive to keep the plants under control. In some cases, this can lower your total seed yields—you can't pick your green beans and let them dry too! A light harvest can also be a good way to evaluate the plants and decide if you want to rogue (eliminate) any.

On our farm, when most of the seed is mature on the plants, it takes us 30–60 minutes to pull in a seed crop and set it on tarps in a dry spot. After the crop has fully dried down, it will take a few hours to thresh and clean the seed. Of course,



Tomato seed drying on sheets of newspapers at La ferme coopérative Tourne-Sol.

the time depends on the number of plants you grow. This year we harvested 15 lbs. (7 kg) of Tat Tsoi mustard seed from 300 plants. It took about 40 minutes for three people to bring the seed into the barn. Two weeks later, it took three people one hour to thresh the seed and do most of the cleaning. It takes an additional half hour for one person to clean the seed thoroughly.

We isolate varieties of *Brassica rapa* in time, rather than space.

Seed growing adds challenge, fun and learning to the growing season. Seeing a vegetable go through its whole cycle from seed to seed gives a deeper understanding of that crop. The relationships between different species in the same families become much clearer, as does the way crops change through the year.

Daniel Brisebois and Emily Board are two of the five members of Tourne-Sol cooperative farm. Dan is also co-author of COG's upcoming Crop Planning for the Organic Vegetable Grower handbook, and is on the COG board of directors.

Photo credits: Daniel Brisebois

For further reading:

Seed to Seed. Suzanne Ashworth. Seed Savers Exchange. 2002.

How to Save your own Vegetable Seeds. Seeds of Diversity.

The Wisdom of Plant Heritage: Organic Seed Production and Saving. Bryan Connolly. NOFA. 2004.

Breed your own Vegetable Varieties. Carol Deppe. Chelsea Green Publishing. 2000.

Small-Scale Organic Seed Production. Patrick Steiner. Farm Folk/City Folk.

Organic Seed Alliance
www.seedalliance.org

www.savingyourseeds.org

Eastern Canadian Organic Seed Network (ECOSGN)

Eastern Canadian Organic Seed Network's mission is to foster a community of seed growers and seed sellers who can protect and enhance an economically viable and ecologically sustainable organic seed supply for Eastern Canada. We strive to do this through education, shared resources, research and a united political voice.

ECOSGN meets a couple of times a year to share seed production information, visit seed farms and host courses. Last fall, ECOSGN hosted a two-day workshop on the Fundamentals of Plant Variety Improvement with John Navazio of the Organic Seed Alliance. On April 11, 2010, ECOSGN is planning a one-day workshop on building a stronger seed system in Eastern Canada.

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