A Seedy Business®

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There are many advantages to growing plants from seed. Satisfying plant curiosity, observing genetic diversity, and sheer novelty are all good reasons to try plants from seed. The proliferation of liner nurseries providing (very attractive) plant material to a wide range of nurseries has made growing crops from seed almost essential to maintain a unique selection of plants.

My mailorder seed business, Seedhunt, was started in 1996, in an effort to provide seeds of plants that do well in Mediterranean climates that were not commonly available in commercial seed catalogs. Emphasis is on perennials and annuals and the current list includes about 60 annuals, 73 *Salvia* species or cultivars, with the remainder made up of bulbs, some grasses, perennials, and a few shrubs. About a third are plants native to California. Seeds are gathered from cultivated plants.

My very small nursery and garden is set on about 1½ acres in Watsonville, California. The climate is very benign. Soil is medium to heavy loam. Rainfall typically occurs from October through April. Coastal fog influences summer temperatures. Many mornings are cool and foggy, afternoon highs are often in the low 80s. Light frosts occur on many winter nights, but it does not generally drop below 25 ºF.

Seeds are started from October through May, with the majority being started after mid-January. Restio seeds are planted in October. Most California annuals are started in January and early February. Salvias and other new species are typically started February to March for the temperate climate species and in mid-April for the more tender species. Starting the seeds in February, rather than at the more often recommended fall planting, gives the young seedlings a shorter period of vulnerability before their growth accelerates in spring. The seed house has a fiberglass roof and screen sides to keep out birds, but the exposure to ambient temperature and good light keeps seedlings sturdy. It also provides that fluctuating night and day temperature spread of 20–30 ºF that can be essential to good germination for many species of plants from Mediterranean climates.

Many of the California annuals are grown in large communal pots, and are planted in small clumps rather than trying to separate individuals. Many plants are kept in containers for ease of seed harvest and because the garden is not watered often enough to keep them productive. Predation by snails, birds, and gophers is easier to control and, in the case of closely related species, it is possible to separate plants widely when they are in bloom. Most plants are open-pollinated.

Questions of outcrossing, hybrids, cultivars, and genetic purity are always considered. Some plants require outcrossing within the species to produce seed. *Puya alpestris* and *Nicotiana mutabilis* are two examples of this. *Nicotiana*, or at least *N. mutabilis*, needs another genetic partner to produce seed, but also can cross with other species. With species that might hybridize, a crop is grown out to see how they look before seed is offered. There are many plants I do not grow or offer seed, because I cannot isolate them well enough on my 2-acre plot.

There are seed strains of native annuals that have been selected over time. A number of years ago Bart O'Brien of Rancho Santa Ana Botanic Garden spotted a pale yellow variant of *Amsinckia vernicosa* var. *furcata* in the Griswold Hills area

of San Benito County. He collected a few seeds and when he grew them on had a certain percentage of them produce pale-yellow flowers. He shared some seed and now that seed strain consistently produces pale-yellow flowers. *Lupinus succulentus* 'Rodeo Rose' was collected and named by Roger Raiche. It is a pink selection of the typical blue-flowered species.

Special planting arrangements are sometimes made for seeds that ripen as the plants continue to bloom, for example, *Linanthus* 'Stardust'. Ground cloth is laid between the rows and once a week or so plants are shaken and seeds are swept off the cloth. Blooming and harvest continued for over 2 months in this case. Harvest of *Solanum pyracanthum* is especially challenging. When the yellow "tomatoes" are ripening they will shoot off a juicy, seed-filled squirt. Directing this juice into a bag leaves a large quantity of seed once the very wet bag dries. Sticky stems and calyces are always a challenge, but in the case of *N. glutinosa* it is possible to pour the seed from the ripe pod into a collection envelope, taking care not to let the very viscid calyx drop into the envelope.

Seed harvest usually begins sometime in May and continues through November. Of course, the species that hurl their seeds as the pods dry require special attention. Harvest tends to be utilitarian and very low-tech. A diversity of baking pans is used to collect seed that can allow that kind of harvest and brown shopping bags to large manila envelopes store the seed while it dries. Any car is an excellent seed dryer. Windows are left partly open and most seed stays in the car for 1 or 2 days to complete the drying process. Many plants require repeated collections, usually on a 2–3 day schedule.

Once dried**,** seed is cleaned. I have a great collection of kitchen utensils — baking pans, colanders, strainers with different mesh sizes, but these work well. Once cleaned, seeds are labeled, dated, and seed is stored in a cool, dry place. Seed is generally sold within the year after it is harvested.

The seedlist is sent out in November to customers who have ordered within the previous 2 years. There is also a website where there is a complete listing, divided by category. The website listing is updated in early December and then periodically as seeds sell out.

Typically, a little over 25% of my orders are from overseas, with a majority of these from the Netherlands and England. The other 75% is divided about equally between sales in California and sales in the rest of the U.S.A. Nurseries in California account for about 1/3 of the sales within California. Many of the customers in the general U.S.A. and overseas are also small nurseries and farm centers.

Societies such as the North American Rock Garden Society, the Scottish Rock Garden Society, and the Alpine Garden Society have been great sources of seed of interesting plants. Collected by members with various enthusiasms, their yearly seed exchanges always offer interesting prospects of seed not available anywhere else. Collectors of seed from wild places — Euroseeds, Silverhill Seeds, Alplains, and Southwestern Native Seeds — always have worthwhile listings. In addition, mailorder nurseries like Plant Delights, Heronswood, Yucca Do, and Arrowhead Alpines are great sources of new plants. The new policy of the U.S.D.A., to strictly enforce their phytosanitary certificate requirement on incoming seed species, has restricted seed from overseas collectors.

A current project involves planting different restios from South Africa, with a hope of collecting seed in the future. Of course, this is a complicated project. Restios

are dioecious, so plants will carry either male or female flowers. Martin Grantham assures me that if six plants are in the ground, statistically there should be at least one member of each sex present. Restios are wind pollinated, so they need to be near each other, with the "boys" hopefully upwind of the "girls". And when the seeds actually ripen, they are released over a very long period with a small quantity released at one time. So, patience will be an element here. This year there was a small harvest of some species and they will be planted this fall to test viability. There are always new plants to try.

Salvia Propagation®

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In 1989, I started as a garden assistant growing cut flowers for the farmers market. In my search for new and different material for bouquets, my fellow propagator, Christine Dye, and I came across *Salvia gesneriiflora* 'Tequila' on a field trip to the Huntington Botanic Gardens in Los Angeles, California. At that moment my passion for salvias began. In 1989 we grew only three sages for our sale – *S. elegans, S. leucantha,* and *S. microphylla*. At Cabrillo College we propagate and grow salvias from all over the world for our annual Mothers Day plant sale. This year we offered a selection of 173 species and cultivars.

PROPAGATION

Our propagation methods are influenced by many factors including origin of plant, time of year, quantity of cutting material, seed production, growth type, and health and age of mother stock. Often more than one type of method is used. Almost all of our asexual reproductions of salvias are by stem cuttings and a few by division. From an economic point of view, most cuttings produce a larger plant faster than from seed and will bloom the first year. All cultivars and hybrids should only be reproduced by cloning.

Cuttings. We use nonflowering stems on healthy fertilized mother stock in ground or in nursery cans. Stem tips and laterals are most commonly used and on some of the larger hollow-stemmed plants I cut the new shoots sprouting from the base. *Salvia apiana* is an example. They are sterilized in a diluted bleach solution and treated with a liquid rooting hormone. I use Dip 'n Grow at a dilution of 1 : 10.

The cuttings are stuck in sterile containers in a medium consisting of 3 perlite : 1 sifted peat (v/v) and put on a mist bench at 5-min intervals. The bottom heat is set at 70 °F. The cuttings are fertilized weekly with 20-20-20 at 100 ppm. Most salvias are rooted in 4 weeks with the more vigorous rooting as early as 2 week and slower rooting in 6–8 weeks. They are then potted up with soil mix in sterile containers and put back under the mist bench, misting at longer intervals of 30 min for 1 week so they acclimate slowly. This has increased the rooting percentage greatly.

Division. Some of our fall-blooming salvias spread by underground runners, and produce large colonies in the ground; division easily propagates these. The stock is divided from cans or dug up from the ground and grown in an outside shade structure. This ensures a large saleable plant for the sale. *Salvia arizonica* and *S. madrensis* are examples.