

## HYBRID VARIETIES AND SAVING SEED

Although most horticulturists and plant breeders do not recommend home gardeners grow their own seed, it's a definite fact that seeds of many vegetables grown under garden conditions will generally prove satisfactory for later planting.

Raising and saving seed is obviously not for everyone. The gardener whose only aim is to grow a few backyard vegetables is certainly not interested. That gardener to whom the height of adventure is trying a new variety will certainly back away. But the avid gardener who enjoys a challenge, who likes to try something different, who wonders about the "why" of how plants grow - - this person should probably try raising seed. There will be failures, problems and disappointments, but these will only make successes that much sweeter.

Gardeners will face discouraging arguments about raising their own seed, both in what they read and from conversations with other gardeners and horticulturists. These precautions and arguments should be heeded and close attention paid to some of the obvious pitfalls, such as:

1. You shouldn't save seed from hybrid vegetables because they won't produce true in the next generation. This is indeed a fact. To understand this completely, you must understand what a F-1 hybrid is. The simplest way to define an F-1 hybrid is to take an example. Let us say a plant breeder observes a particularly good habit in a plant, but with poor flower color, and in another plant of the same type he sees good color but poor habit. The best plant of each type is then taken and self-pollinated (in isolation) each year and, each year, the seed is re-sown. Eventually, every time the seed is sown the same identical plants will appear. When they do, this is known as a 'pure line.'

If the breeder now takes the pure line of each of the two plants he originally selected and cross pollinates the two by hand the result is known as an F-1 hybrid. Plants are grown from seed produced and the result of this cross pollination should have a good habit and good color.

This is the simplest form of hybridization; there are complications, of course. A completely pure line can sometimes take seven or eight years to achieve. Sometimes, a pure line is made up of several previous crossings to begin to build in desirable features and grown on until it is true before use in hybridization.

To summarize, an F-1 hybrid is the result of crossing two pure lines to achieve the desired result. This seems a lot of trouble to go to but there are definite advantages. Scientific and accurate breeding programs have made it possible not only to bring out the outstanding qualities of the parent plants, but in most cases, these qualities have been enhanced and new desirable characteristics added to the resultant hybrid plants. In addition to qualities like good vigor, trueness to type, heavy yields and high uniformity which hybrid plants enjoy, other characteristics such as earliness, disease resistance and good holding ability have been incorporated into most F-1 hybrids. Uniform plant habit and maturity, coupled with uniformity in shape or size have made hybrid vegetables extremely suitable for mechanical harvesting.

We can't expect to get all these advantages for nothing. Because creating F-1 hybrids involves many years of preparation to create pure lines and these pure lines have to be constantly maintained so that the F seed can be harvested each year, seed is more expensive. The problem is compounded because to ensure that no self pollination takes place, all the hybridizing of the two pure lines sometimes has to be done by hand. So you often have to pay more for your seed or get fewer in a packet. Seed is often collected by hand too to ensure that each plant is as productive as possible.

It is not only the gardeners who benefit, there are advantages for the plant breeders too. With ordinary varieties anyone can grow them and collect the seed which can then be re-sown in the garden or, on a larger scale, sold. So a plant breeder who puts a lot of work into creating a variety which is not an F-1 hybrid can soon find someone else selling it and getting a share of the financial reward. But seed collected from a F 1 hybrid will not produce plants the same as those from which it is collected. Only by crossing the pure lines can the variety be made - and only the original breeder has the necessary pure lines. However, there are many open-pollinated varieties of vegetables that were growing successfully long before the hybrids came along and which can be duplicated by saving seed.

2. It is difficult for the home gardener to isolate varieties and strains to avoid unwanted cross-pollination. Cross-pollination can be a major problem if the gardener works in the midst of many other gardens where he has no control over what is being grown around him.

3. Unwanted cross-pollination and faulty selection of parent plants result in the gradual deterioration or "running out" of the seed. If you still want to try your hand at growing some seed at home, then ordinary cultural practices necessary for the production of good quality home-grown vegetables are usually adequate for seed production. In fact, the seed saved are by-products of the vegetables planted for table use.

In the case of seed saving, a part of the row or maybe a few plants in the row are tagged as those to be allowed to produce seed. The vegetables of designated plants will be allowed to remain until mature on the plant.

Extreme care should be taken to prevent mixing of varieties. For example, if you want to save squash seed, then plant only one type of squash in your garden. You should also realize that there are some vegetables that are not valuable or practical for saving seed such as carrots, beets, radishes and mustard.

Following are some simple directions on how to save seed from some of the most commonly grown garden vegetables:

**BEANS (all kinds)**- Allow the seed to thoroughly mature on the plant, usually indicated by size of the seed in the pod or by the color of the pod. Pull the entire plant early in the morning and place it in the shade to dry out. This will prevent the pods from splitting open and the beans from shattering.

**CUCUMBERS** - Cross pollination occurs in cucumbers. This means pollen is transferred from a plant of one variety to a plant of another variety. This is done by insects. Although it does not affect the fruit borne this season, if you save the seed and plant them next year, the plants that come from these seeds will be different. So will the fruit. So, if you want to save cucumber seed, plant only one variety. Select strong, healthy cucumber plants and well-formed fruits. Let the fruits hang on the vine until ripe (skin becomes yellowish and hard). Then handle like the process for tomatoes given below.

**EGGPLANT** - When the eggplant fruit has obtained maximum size and shows some evidence of browning and shriveling, it is ready to be harvested for seed. Split open, remove the seed and wash thoroughly to remove all pulp. Spread out in the sun to dry quickly as moist seed will begin to germinate overnight if left in a damp condition. Store in a cool, dry place.

**OKRA** - Okra pods should be left on the stalk until brown and well matured. Remove the pods and place them in the shade until thoroughly dried. Although the seed may be removed from the pod, it is generally best to store them in the pod until ready for planting at which time the pods may be split open and the seed removed. Pods harvested too green will not store well and are likely to split, shattering the seed.

**PEPPERS** - Pepper should be allowed to ripen until they become red. Cut the pepper pod in half and scrape the seed from a cavity onto a piece of paper. Spread out the seed and dry thoroughly before placing in a storage container.

**SOUTHERN PEAS** - Southern peas should be left on the plant until thoroughly matured, usually indicated by a browning of the pods. The pods should be picked, spread out in a dry area and cured for a week or two, then shelled.

**SQUASH** - If seed are to be saved from squash, grow only one variety in the garden. When the outer covering of the squash has become hardened, the seed are generally mature. Split the squash fruit open, scoop out the seed and wash until all pulp is removed. Spread out on newspaper to dry.

**TOMATOES** - Allow the tomato fruit to thoroughly ripen on the vine. Cut the tomatoes open and remove the seed by squeezing or spooning out the pulp with seeds into a non-metal container such as a drinking glass or jar. Set the container aside for one or two days. The pulp and seed covering will ferment so that the seeds can be washed clean with a directed spray of water into the fermented solution. The clean, viable seeds will drop to the bottom of the solution, allowing the sediment to be poured off. Several rinsings may be necessary. Then spread the tomato seed out on a cloth or paper towel to dry. After seed are dry, package, label and date for

storage in a cool (refrigerator), dry location.

Who knows - - maybe you will produce a super vegetable which will prevent world starvation!