



ASK A MASTER GARDENER: WHAT DOES “F1 HYBRID” MEAN?

Trish Grenfell, Placer County Master Gardener

From *The Curious Gardener*, Spring 2012

Question: Recently, while shopping at the nursery, I noticed an “F1” after the name of a vegetable start I was going to buy. What does it mean?

Answer: “F1 hybrid” is the term used for the first generation hybrid seed/plant that occurs following the successful cross-pollination of one genetically uniform plant variety with another specific genetically uniform variety.

And there you have it...but let’s investigate in a little more detail...

Producing healthy F1 hybrids requires the use of parent plants that descend from pure lines which consistently self-pollinate to produce one or more desired traits. Creating pure lines for an F1 hybrid can take as much as 7 or 8 years! After horticulturists establish two pure lines and cross-pollinate them, the female plants will bear F1 hybrid seeds/plants.

The reason horticulturalists go to all this trouble is to produce hybrid seed/plants that will have benefits for gardeners. Generally speaking, these plants exhibit “hybrid vigor”. They may have higher seedling survival rates, may develop earlier flowers, produce higher yields, exhibit resistance to disease and insects, and display more uniform appearance.

In a sense, it would seem like these hybrids are the way to go for most home gardeners. Most gardeners would love to utilize hybrids that resist disease for example. But, before we go all in with hybrids, let’s take a look at some of the issues with hybrid seed/plants.

The primary disadvantage of hybrids is that they do not breed true to type.

The hybrid plants may be sterile or if they produce seeds, the seeds will not produce the same plant the following year because they contain an unpredictable mixture of characteristics from the grandparent plants instead of being similar to the parent. They usually lack hybrid vigor due to a lesser degree of genetic diversity. Therefore, hybrid seeds (or plants) must be purchased year after year.

And that may not be the only extra expense of using hybrids. The breeder of the F1 hybrid variety is the exclusive source of that variety because only that breeder knows the two “purified” parent plants used to produce the seed.

Furthermore, the pollination is often done by hand which drives up the cost of the seed. Other breeders can try to duplicate, but only the first breeder knows the exact combination used. Often the breeders trademark/patent their F1 hybrids so the retailer must pay a royalty to sell the plant under the registered trademark name. This further increases the cost of the F1 seeds.

Another perceived disadvantage: some gardeners feel the taste of hybrid vegetables simply does not equal that of heirloom varieties. But, of course, taste is very subjective.

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION



PLACER COUNTY

11477 E Avenue
Auburn, CA 95603
(530) 889-7385

E-Mail: ceplacer@ucdavis.edu

The University of California, in accordance with applicable Federal and State law and University policy, does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, medical condition (cancer-related), ancestry, marital status, citizenship, sexual orientation, or status as a Vietnam-era veteran or special disabled veteran. Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action Director, University of California, Agriculture and Natural Resources, 1111 Franklin, 6th Floor, Oakland, California 94607-5200. (510) 987-0096. United States Department of Agriculture, University of California, Placer & Nevada Counties cooperating.

NEVADA COUNTY

255 So Auburn
Grass Valley, CA 95945
(530) 273-4563

E-Mail: cenevada@ucdavis.edu

'Burpee's Big Boy,' 'Celebrity,' and 'Early Girl' tomatoes, 'Sweet Success' cucumber, and 'Premium Crop' broccoli are examples of F1 hybrids that have been popular for years. Many gardeners rave about the taste and ease of growing these varieties.

As popular as some hybrid varieties are, heirloom (or open pollinated) varieties have also become quite popular (or remained popular in many cases). Many of these varieties have been grown for a very long time and have loyal followers. The advantage of heirloom (open pollinated) seeds is that the home gardener from year to year and generation to generation may continue heirloom plants by careful seed saving. And, an often overlooked benefit of open pollinated seeds is that they provide a larger gene pool for future breeding.

Well known open pollinated varieties include 'Kentucky Wonder' pole bean, 'Scarlet Nantes' carrot, 'Black Beauty' eggplant, 'Black Seeded Simpson' lettuce, 'California Wonder' pepper, and 'Brandywine' and 'Roma' tomatoes.

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION



PLACER COUNTY

11477 E Avenue
Auburn, CA 95603
(530) 889-7385

E-Mail: ceplacer@ucdavis.edu

The University of California, in accordance with applicable Federal and State law and University policy, does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, medical condition (cancer-related), ancestry, marital status, citizenship, sexual orientation, or status as a Vietnam-era veteran or special disabled veteran. Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action Director, University of California, Agriculture and Natural Resources, 1111 Franklin, 6th Floor, Oakland, California 94607-5200. (510) 987-0096. United States Department of Agriculture, University of California, Placer & Nevada Counties cooperating.

NEVADA COUNTY

255 So Auburn
Grass Valley, CA 95945
(530) 273-4563

E-Mail: cenevada@ucdavis.edu

Placer County Hotline: (530) 889-7388. Visit us online at <http://pcmg.ucanr.org>