

# New research expands genetic base of cultivated strawberry

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Today's most common cultivated strawberry, the familiar *Fragaria x vananassa* (*F. xananassa*), is believed to have resulted from a chance hybridization of two wild strawberry species in Europe more than 250 years ago. This hybridization combined the unique characteristics of both species, including the larger, firmer fruit of *F. chiloensis* with the darker red, more aromatic fruit of *F. virginiana*. The fact that *F. xananassa* has a narrow germplasm base has breeding ramifications. The species tolerates inbreeding poorly, and its low genetic diversity leaves the strawberry susceptible to disease and abiotic and biotic stresses.

In an attempt to increase the genetic base of *F. xananassa* and introduce novel [genetic diversity](#) into the cultivated [gene pool](#), James Hancock and colleagues from the Department of Horticulture at Michigan State University, the University of Minnesota, and the USDA-ARS in Oregon designed an experiment that crossed elite clones of the two wild species, then hybridized them to produce 26 reconstructed populations. A full report of the study appears in [HortScience](#).

In the study, 78 individuals resulting from the cross of *F. chiloensis* and *F. virginiana* were evaluated for their seasonal flowering patterns, inflorescence number, inflorescence height, crown production, flower number, fruit size, yield, internal color, soluble solids, fruit firmness, and plant vigor. The scientists concluded that the reconstruction of *F. xananassa* by crossing elite genotypes of *F. chiloensis* and *F. virginiana* appears to be an effective strategy for strawberry improvement. They found that, although none of the examined FVC11 genotypes are of

commercial quality, many have characteristics superior to their parents.

According to the study, there are still questions about whether intercrossing within the reconstructed populations will yield new cultivars. "Although the fruit size in the best FVC11 genotypes is far superior to any wild germplasm, it is still smaller than commercial size", Hancock noted, adding that the FVC11 population evaluated would be a "great tool" to breeders wishing to introduce novel genetic diversity into their breeding programs.

The team is currently expanding this population to increase the chances of acquiring genotypes with even more positive combinations of traits.

**More information:** The complete study and abstract are available on the ASHS HortScience electronic journal web site:

[hortsci.ashspublications.org/content/45/8/1140](http://hortsci.ashspublications.org/content/45/8/1140)

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