



Redwood Barn Nursery

1607 Fifth Street Davis, California

In Praise of Plant Breeders.

“What does it mean that this plant is patented? I’m not allowed to propagate it?”

That’s what it means. You are not allowed to propagate it.

Here’s the typical legal boilerplate:

“Asexual propagation of patented plants (including any of its parts such as leaves, buds, cuttings, seed, fruit or pollen) is strictly prohibited without the written authorization of the patent holder or the patent holder’s agent.”

For many years the only plants commonly patented in the nursery industry were roses. The company that introduced a new variety held the patent and either kept it as an exclusive product, or licensed it to other growers to grow for a fee. Patented roses cost a couple more dollars than older ones did. After the patent expired in 20 years, anybody could propagate and sell the rose without paying a patent fee to the originator.

Some plants just have trademarked names. Anybody can take cuttings and grow and sell them, but the name can only be used by the originator or anyone they give permission to. The dwarf variety of Indian hawthorn called ‘Ballerina’ can only be sold with that name by Monrovia Nursery. Others grow it and sell it as ‘Pink Dancer’ or some similar-sounding name. The owner of the trademark is protecting the brand, often as part of a marketing program.

Plant patents are one way for plant breeders to make a living from their creations. Sometimes that can be quite lucrative, though it’s important to note how many years can go into the creation and development of a new variety. We have a local example.

The Independence almond

Almonds are uniquely suited to the Central Valley and have been cultivated here since the 19th century. They just became Yolo County’s #1 cash crop in 2017¹.

Almond growers get the highest price per pound for Nonpareil, a variety that was introduced by A. T. Hatch of Suisun in 1879.

It is considered highest quality, with the best appearance and range of uses. But like all commercial almonds, it was not self-fruitful. Another type of almond must be planted in the same orchard, and beehives are put out to ensure cross-pollination. Renting beehives is expensive. The pollinizer almonds, though good, sell for a lower price.

Chris ‘Floyd’ Zaiger (UC Davis ’52) of Zaiger Genetics in Modesto introduced a self-fruitful almond variety that has nuts as high quality as Nonpareil. It doesn’t need a pollinizer, and growers reduce the number of beehives used from 2+ per acre to as little as one hive per two acres, a significant cost savings.

¹ <https://www.davisenterprise.com/local-news/almonds-supplant-tomatoes-as-yolo-countys-top-crop/>



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The whole orchard can be harvested at once, since it's all one variety (other almonds split and drop at different times, requiring multiple passes with the shakers), providing an additional cost savings. Higher price with lower inputs meant Independence has sold well.

How long did this process take?

It was selected from a generation of seedlings in 2001, planted a few years prior. Tested and increased over several years, Independence was finally introduced in 2008. By 2015, it had become the second most-planted variety in California, still behind Nonpareil, but overtaking all others.

Zaiger's company makes a couple of dollars for each tree that's sold, which may not sound like much until you realize that there were 28,000 acres of Independence almonds planted as of 2017. Let's see, 125 trees or more per acre, a couple of dollars each for the patent, times 28,000 acres. Not bad revenues for a single variety.

Zaiger is one of the foremost plant breeders of our time. I count over 130 patents held by Zaiger Genetics of stock currently sold by Dave Wilson Nursery, a grower he has partnered with for decades. His firm is said to hold about 280 patents total.

In addition to his work with almonds, Zaiger has introduced, perfected and multiplied a whole new category of fruit over several decades: the plum/apricot hybrids called pluots and apriums, as well as other interspecific hybrids called necta-plums, pluerries, and the recent peacotum (peach-apricot-plum). He's also introduced cherries that fruit with less winter chilling, commercial quality white peaches and nectarines, new cling (canning) peaches, lower-acid peaches, and much more.

Pioneering rose breeders

Now 92, David Austin introduced his first rose variety in 1961 ('Constance Spry'). His goal was to combine the fragrance and appearance of old-fashioned heirloom roses with the repeat-flowering and color range of modern roses. He calls them English roses, but we mostly call them David Austin roses.

His roses usually have lots of petals all crammed together, the way roses used to have before they were bred for that perfect overlapping-petal look of modern Hybrid Tea roses. Austin's roses generally are very, very fragrant. In California we have found his roses grow rather more robustly than his catalog descriptions. Give them room.

It's a remarkable feat that David Austin single-handedly created a whole new category of roses, focused attention back onto fragrance, and laid the groundwork for future breeders.

Ralph Moore

Another UCD alumnus, who, like Austin, created a whole new category of roses. Ralph Moore was never a fan of big-flowered roses (he called them "cabbages on a stick").

Instead, he began breeding tiny-flowered rose species with bigger hybrids in the 1930's, creating truly miniature plants with perfect miniature flowers. Twenty years later he patented his first one. By the time he retired on his 101st birthday in 2008, he had introduced about 500 new varieties.



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The breadth of genetics he used was wide, as he cast his net to many species in creating his varieties. This leaves a legacy for future breeders to develop even more interesting types.

Rev. Pemberton and his hybrid musks

Reverend Joseph Pemberton was a rose lover who hybridized roses in the late 1890's and early 1900's. Seeking to "recreate the Grandmother's rose he recalled from childhood," he began crossing an old climber (called Trier) with modern Hybrid Teas, creating informal-growing roses which came to be called Hybrid Musks.

Most have an informal, lax growth habit, sort of like sprawling climbers. They have good shade tolerance and are often nearly thornless.

One of the things that has always fascinated me is how variable their scent is. "Smell this one!" you say, and your guest walks up and gets only a faint sweet odor. Then in the early morning or at dusk the fragrance permeates the whole garden.

This confusion shows up in catalogs. You can count on prose from rose sellers to be pretty florid, and if there's even a hint of scent they'll embellish it. Well, the parent plant of the hybrid musks, Trier, merits this description from New Zealand's Peter Beales, one of the world's pre-eminent rosarians: "Little or no fragrance."

Huh? England's David Austin says it has "strong, true musk fragrance."

Whence this antipodean discrepancy?

When rose folks say "musk," they don't mean it smells like men's cologne. This isn't an animal smell. It's a sweet, spicy perfume.

There is, in fact, a musk rose: *Rosa moschata*, which played a small part in the parentage of this group and probably gave them the name. I have this rose. It's super fragrant. And insanely vigorous. It was threatening to climb up a dawn redwood and engulf nearby shrubs. I have made enough mistakes with roses of this type that I dug it up and put it in a barrel to constrain it. I don't need another thorny thicket on my property. The fragrance varies greatly during the day. The aromatic compounds in the musk rose are apparently quite volatile, becoming airborne and drifting many yards from the plant. Many hybrid musks are like their distant relative in their type and dispersal of odor.

Unless you're a rose collector, you've probably never heard of hybrid musks. With one exception, hardly anyone buys them, though you can find them at online rose companies. But breeders continued to work with them for years after Pemberton's death, culminating in one of the most popular roses of our time: Schneewittchen.

Schnee which?

Schneewittchen means Snow White in German. American rose growers long ago found that the buying public won't go for foreign names. My guess is that the name Snow White was not available for some reason. They named it Iceberg.

Iceberg roses can be seen blooming with masses of pure white flowers all over town from spring through fall.

Since the hybrid musks are a rather obscure group, and Floribunda roses have better marketing and similar bloom habit, Iceberg is usually sold as a Floribunda rose.



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That original climber, Trier, conferred great disease resistance to the hybrid musks, including this one. It grows to 6 feet but is easily kept lower. You can prune it with hedge shears, or plant *en masse* in a flower border. Burgundy and pink and climbing sports (spontaneous mutations) have occurred and been introduced.

So, this meandering breeding path, over the course of many decades, led to an enormously successful garden rose. And hardly anyone knows the provenance from a retired Anglican minister who wanted to recreate his grandmother's rose.

Is it fragrant?

David Austin: "light, sweet fragrance."

Peter Beales: "little or no fragrance."

My experience: it depends on the time of day.

The patent for the original Schneewittchen aka Iceberg expired years ago. Feel free to take cuttings, and you will find that it roots quite easily from cuttings taken in winter.

If you know someone with a mildly obsessive nature, good attention to detail, and ample patience, you might suggest a career in plant breeding. Suggest they start young!



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Hybrid Musk rose:

Bishop Darlington was a 1926 variety by Rev. Pemberton in the Hybrid Musk class of roses. The plant has an open habit and spreads outward, even climbing if given a support. According to one rose grower, "the delicious fragrance is released freely into the air." The foliage is disease free even in shade.



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David Austin roses:

Harlow Carr is a typical David Austin rose in many ways: packed with petals in heavily doubled flowers, extra-strong "Old Rose" fragrance.



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An entirely new color in English roses at the time, Pat Austin was a 2004 introduction by David Austin. It shows the typical “old rose” look of many petals crowded in the bloom, unlike modern roses bred for carefully overlapping petals. Like most of his roses, it is very fragrant.



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Iceberg rose:

Iceberg rose, shown here just as the flower is unfurling. Clusters of blooms open from April through November, with bright white flowers on an easy, disease-free shrub.



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Whenever a plant is propagated clonally for many years, spontaneous mutations occur. With roses, we call them “sports” and if they are stable they get named and propagated. Burgundy Iceberg arose on its own in Australia and has become a popular complement to the white flowers of the original. It is still under patent.



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Still blooming on a rainy day in late November. Iceberg has clusters of blooms from April through autumn. Grown here as a hedge and pruned lightly and informally, my plants are about 6 feet tall. Another plant that I prune more severely in winter stays about 4 feet.