



Redwood Barn Nursery

1607 Fifth Street Davis, California

About peppers

*Peter Piper picked a peck of pickled peppers.
If Peter Piper picked a peck of pickled peppers,
where's the peck of pickled peppers
Peter Piper picked?*

Peter Piper was a real person.

He was actually Pierre Poivre, a French name which translates to Peter Pepper, and he was notable for establishing a botanical garden in Mauritius in the 18th century.

The word Piper is the official botanical name of black pepper, *Piper nigrum*, which we grind onto food as a condiment. Hence, Peter Piper.

Appropriate to his name, he smuggled spice plants from out of the control of the Dutch in the East Indies and got them established in the Seychelles and Mauritius. This helped break the monopoly the Dutch had on the spice trade. Black pepper was an important spice.

So, the question that he is most famous for, "If Peter Piper picked a peck of pickled peppers, where's the peck of pickled peppers Peter Piper picked" raises any number of complications.

Most important, the peppers referred to in the nursery rhyme are not black pepper, but the hot peppers we grow in our gardens, which botanists put in the genus *Capsicum*.

Yet *Capsicums* are native to the Americas. A more relevant question than 'where's the peck of pickled peppers' might be: how did a French colonial administrator happen to have peppers to pickle? Did he grow these Meso-American fruits in Mauritius? It's quite possible, even likely.

In an article my father wrote a number of years ago¹, which we reprinted in the Davis Enterprise in 2009, he traced the trade in *Capsicum* peppers from the New World, carried by Columbus to Spain (the *aji* pepper) and especially by the Portuguese along their extensive trade routes from South America to South Africa, India, and the Middle East.

"The evidence seems to be clear: that in 51 years from 1492, when Columbus found the "aji" in Hispaniola, to 1543 when Fuchs in Germany published a treatise that described the "Indian or Calicut" peppers newly arrived from the East, the plants had spread from North and South America, not just to a few palace gardens and herbariums in western Europe, but to common cultivation in Africa and India, and back to eastern Europe and were competing with the "true pepper" in its own stronghold."

Columbus often gets the credit, but the Portuguese really did the work due to the sheer breadth of their trading empire.

Peppers even ended up in the Dutch East Indies, the center of the world's spice trade, and were called peppers because their pungent nature made them similar in usage to black pepper. Any

¹ The Surprising Spread of Peppers http://redwoodbarn.com/DE_peppersdad.html



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avid horticulturist of the 18th century, including Monsieur Poivre, was likely growing some form of *Capsicum* pepper.

Part of their success is that peppers are quite easy to grow anywhere it's warm. In subtropical to tropical regions they are soft-wooded shrubs that live for several years. In warm-summer, cold-winter areas such as the Sacramento Valley they are summer annuals in the vegetable garden. In a mild winter, pepper plants can overwinter here in a sheltered location.

Because of their wide distribution, tendency to self-sow and naturalize, along with centuries of artificial selection and intentional hybridization, there are thousands of varieties of peppers. Some are open-pollinated, some heirloom strains, many regional favorites, and lots of new hybrids with a range of flavor, juiciness, and heat. We can sort them by botanical and geographic origin, and by usage.

Current consensus of plant taxonomists is that there are four major species, with one predominant, of *Capsicum* in the parentage of our home garden types.

First, the lesser-known pepper species:

Capsicum baccatum: the South American *aji* (ah-hee) peppers. *Aji amarillo* is widely used in Peru and Bolivia. Great flavor. The *aji* peppers are generally quite hot.

Capsicum frutescens includes the tabasco pepper (originated in the Mexican state of the same name), the famously hot little Thai peppers, and those used for the Portuguese condiment known as *piri piri*. Fruit are generally held upright. All are very hot.

Capsicum pubescens, also mainly from Bolivia and Peru, has very few varieties familiar to us, but the *rocoto* peppers are sometimes grown.

Capsicum chinense is totally misnamed. "Chinense" means "from China," but of course they aren't from China or even Asia at all. They originated in Central America and the Caribbean. They had been planted in China and India already when the first botanical classifications were done, and were so widespread that they were thought to be native to those regions. Varieties of *chinense* peppers include some of the hottest types known: *habañero*, *naga*, and *Scotch Bonnet*.

Bhut jolokia, commonly called the ghost pepper, is a hybrid between *C. chinense* and *C. frutescens*. It was ranked as the hottest pepper in the world for a while. Some intrepid breeders have created even hotter types. As of 2013, the verified hottest pepper in the world is said to be the *Carolina Reaper*, another variety of *C. chinense*.

The *chinense* peppers actually have rich, fruity flavor, but the heat is overwhelming to most people. Recently breeders have developed heat-less types such as *Habanada* and *Roulette*. *Chinense* peppers need heat to get going. Don't plant them early.

In terms of sheer number of types, the most important species of peppers is *Capsicum annuum*, which includes the most popular hot peppers (*jalapeño*, *serrano*), some very hot (*cayenne*) and



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some used as dried spices (paprika), the canned chiles you buy in the store (variants of Anaheim), the New Mexico antecedents of the Anaheim such as Hatch peppers, and all the wax, sweet, and bell peppers, along with lesser-known types such as chiltepin pepper native to the American southwest.

For a long time, it was debated whether *Capsicum annuum* was domesticated in, or originated from, Mexico. In 2013 a multi-disciplinary, international team including three UC Davis researchers, applied a novel approach and settled this once and for all. Using “species distribution modeling and paleobiolinguistics data, combined with genetic and existing archaeobotanical data²,” they pinpointed the point of origin to central-east Mexico. From there, the many varieties of what we call chile pepper arose.

Sweet peppers are a modern invention. Until the 1920’s, all peppers contained some capsaicin, the main chemical that causes the heat when you eat them, though they varied widely as to how much. What we call sweet peppers, including the blocky-shaped ones called bell peppers, were developed in Hungary based on a recessive gene.

For most gardeners, it’s probably simpler to classify peppers by how we use them.

Fresh eating.

Those blocky, thick-walled sweet bell peppers are the most popular peppers eaten north of the border. Thinner-walled varieties such as Gypsy are more productive for home gardeners.

Frying peppers.

I first encountered these in conversations with gardeners of Italian heritage. They cut peppers long ways and toss them on the grill or in the pan next to the main course, usually meat, to flavor the dish. The pepper is cooked until slightly soft and served alongside.

You want a firm flesh that holds up in cooking. Italian long green and Spanish sweet are often used this way.

Shishito and padron peppers are often sautéed for garnish, but be forewarned that about 10% of the plants produce fruit that are fiery hot. Sort of a pepper roulette. They are thinner, so are cooked for a much shorter period, and are also popular for pickling and fresh eating. Easy to grow and very productive here.

Slightly hot for cooking.

Chile peppers used for rellenos, or for chopping up into the unique New Mexico gravy called ‘green pepper sauce’, are variants of New Mexico peppers. These southwestern strains range from slightly to moderately hot, and are used green or red. The Hatch Valley of New Mexico has long produced some strains of these, all called Hatch peppers, that vary from slightly to very hot. One strain apparently migrated to California and is called Anaheim. It’s the pepper made

² Multiple lines of evidence for the origin of domesticated chili pepper, *Capsicum annuum*, in Mexico
<https://www.pnas.org/content/pnas/111/17/6165.full.pdf>



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popular by Ortega brand and sold in cans. Anaheims and Hatch peppers are easy to grow, productive, freeze well, and have very slight heat.

Salsas, sauces, condiments.

Salsa became the most popular condiment in the U.S. several years ago. At its most basic, it's just hot peppers chopped up with onions, fresh tomato, and cilantro, mixed with some lime juice. Traveling in Mexico as a kid in the 1960's, this was in bowls on every restaurant table from the humblest to the fanciest. The pepper of choice there is serrano, which is pretty hot. In the U.S. the preference is jalapeño, which is somewhat milder. Both types ripen quickly from green to red by early fall, getting hotter and sweeter as they do, and are very easy to grow.

Tabasco sauce is a unique product of Louisiana, using the tabasco pepper that originated in Mexico. The McIlhenny family developed the process of mashing and then partially fermenting them, blending the strained result with vinegar and salt to make their famous sauce.

I've grown the Tabasco pepper. The plant is quite large, holds the peppers upright and produces a lot of fruit in late summer. Heat range is similar to jalapeño.

Powders, rubs, pepper flakes.

Some peppers have smoky or fruity flavors, and others are just used to provide pungency to a dish. Dried and ground, these are used as rubs for meat or in powder or flake form. For serious heat, look for cayenne or Thai peppers. For a distinctive flavor for some recipes, grow poblano (dried into ancho), pasilla, or the aji peppers.

Allow them to ripen red on the plant, then dry the fruit in late fall. Handle with care when you're processing them; the hot chemicals in the fruit and seeds get on your fingers and can burn your eyes or skin. This is not a project for the kids.

If you've never grown a very hot pepper, you may find that the production of a single plant in a five-gallon bucket is sufficient for sampling. Get the richest potting soil available, keep the plant in nearly full sun, and plan to water it every day. You will get several peppers, which in the case of something as hot as cayenne may well be a year's supply for your family.

Competitive heat endurance tests.

There is a Y-chromosome-linked subculture in the pepper world: folks growing the super-hot peppers simply because of how extremely hot they are. Why would people subject themselves to the extreme pain of a very, very hot pepper? Apparently, it releases endorphins and causes an instinctive fight-or-flight condition, and some people like that.

Even if you don't eat them, the habaero and ghost peppers are strikingly pretty plants, producing colorful, kind of sinister-looking fruit in fall.

How about pickling?

Peter Piper would perhaps prefer pepperoncini or pimento for his peck of pickled peppers now. They are pickled whole because they are tender and crisp. Both are sweet peppers, unavailable in his time. Peter Piper's pickled peppers would have been piquant.



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Peppers grow best in full sun.

They need plenty of water to develop full size and yield well.

All peppers will change color as they ripen, and most will get sweeter. Those fancy colorful ones at the grocery store are bred to ripen faster, usually grown in greenhouses to increase yield and stretch the seasons. Your regular bell peppers will turn red and sweet if you wait long enough.

It's a curiosity that most North Americans eat our peppers green, which is unripe.

Pepper plants continue to set fruit and ripen it as long as days are warm and sunny. They are especially productive here in the early fall and many varieties have fruit that hangs well on the plant all the way up to frost. Peppers planted in June or early July can produce good yields through October.



Our long, warm, dry autumns typically lead to abundant pepper harvests. This picture of mixed sweet and hot peppers was taken in late November.



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One of the hottest peppers available to home gardeners, the habañero has a rich, fruity taste along with extreme heat. New varieties have been introduced that don't contain capsaicin, the heat-inducing chemical in hot peppers. So now we can enjoy the flavor without the flame. A habañero in a planter can make a lovely autumn display.



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The aji peppers (pronounced ah-hee) are from Peru and Bolivia and are widely used there, though less-known to the rest of the world. They produce flavorful, hot fruit in great abundance. This is Aji Amarillo, a variety which ripens yellow instead of red.



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Thai peppers are in the species *Capsicum frutescens*, varieties of which hold their fruit upright. The plants can be very showy and colorful late in the season. This is a very hot pepper, often added in flake form to Asian food.



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Tabasco pepper, a form of *Capsicum frutescens*, holds its fruit upright and the plants are large and productive. The fruit is mashed, fermented, and seasoned with vinegar and salt to make Tabasco sauce, a product of Louisiana.



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One of the most popular hot peppers in Mexico, serranos are basic to fresh salsa. They are hot.



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Fresno chile is an unusual variety. Similar in appearance and use to jalapeño, it is actually a variant of New Mexico chili peppers. Not quite as hot as jalapeño, and more productive in my experience, it's a great all-purpose chili pepper for home gardeners.



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Cayenne peppers have very thin walls and dry readily. They are very, very hot, mostly just used in powder form to add spice to a dish.



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Home gardeners who want a productive pepper that ripens quickly to red and is great for salads and fresh eating should consider Gypsy. This All America Selection grows well nearly everywhere.