CHILI PEPPER

Grower's Guide

SECOND GENERATION SEEDS

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ABOUT US

Second Generation Seeds is a collective of
Asian American growers devoted to helping communities
of the Asian diaspora discover and deepen their cultural heritage through seeds.
Together, we are reclaiming the narrative around Asian crops and our foodways.

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CULTURAL CONTEXT & HISTORY

Hanging in the entryway to our living room are many richly colored strands of chili peppers from several years of harvest from many different regions of Asia; some varieties are small and crinkled and dark skinned, some have long glossy dark skinned fruits, while others are the most vibrant red you can imagine. I often brush against them accidentally while walking through our home, and am greeted with sweet, smoky, and rich aromas.

While I did not grow up in a household where chili peppers were prevalent, I have developed a love in the exploration of chili peppers as an entryway to my own ancestry and identity. Their diversity of flavor, applications, and uses in culinary traditions across Asia is a testament that chili peppers have become so deeply embedded in the cultural and social fabrics of our communities and traditions.

My earliest memory of experiencing hot chilis as a young person was watching groups of diners at a Japanese curry house attempt to finish a bowl of their spiciest five alarm curry. A group of five men sat at a table, coughing, crying, wiping their eyes and trying to finish their bowls of curry as if enduring unbearable spice levels were somehow a testament to their masculinity. While calmly, at the next table a single woman sat and finished her bowl of curry, and was awarded diner of the day award by the restaurant staff for finishing her bowl of the spiciest curry on the menu, with the group looking on with their mouths agape at the young woman.

I think about the contemporary narratives that are being created with the chili pepper, that can offer a window into the cultural moment in which they exist, and what traditional stories they may have evolved from or vary vastly from. In Korea, red pepper strands hanging on the geumjul over the gate can signify the birth of a son.

Somehow in the Ming dynasty opera in China and in other cultural pieces of literature and art, chili peppers were known to be a symbol of women who are assertive, fierce, and who subvert gender expectations. I experience chili peppers simultaneously as a site of tradition and evolution, and cultural tracking.

Today while instagram is flooded with frames of chili crisp dripping over ice cream cones, and Sriracha hot sauce has become ubiquitous in the United States with a cult following, to the point of becoming slathered on as choice topping for pizza in college dorms, the ubiquity and adoration of these condiments is laid against the xenophobia and racism experienced by these same Chinese immigrant communities that created these products, especially heightened during the COVID-19 pandemic.

Beyond the intimate integration of the chili pepper into culture and cuisine across Asia, it also became integrated in traditional medicine as well, referenced extensively in Bencao (Chinese materia medica texts). There are a myriad of heated debates about the origins and dates of introduction of peppers to various regions of Asia, sometimes informed by heated nationalism. While the chili pepper is such a beloved part of Korean food, especially Gochujang (red pepper paste), there is also a lot of debate about the beginnings of the chili pepper in Korea, to its role as becoming both Korean both staple food and daily medicine. Meanwhile, there were also records of chili peppers growing in India by the mid 1500's. It also feels hard to imagine Indian cuisine with chili peppers, which have also become deeply integrated into Ayurvedic medicine. Chili peppers are not as prevalent in Japanese cuisine as in other parts of Asia, the main applications of chili in Japanese food are grilled peppers (for mild chilis like shishito and fushimikara types), or powdered and dried chili often applied to noodle dishes (made from the more spicy takanotsume peppers, also called hot claw peppers).

With chili peppers becoming widely grown and adapted in many regions of China, they were accessible to communities that could not access other spices that were part of the expensive. spice trading routes, and were sometimes substituted for items like salt and black pepper, like in the Guizhou region of China which tends to lack salt. They actually provided important vitamins for people in mountainous regions of China that were not able to grow a wide diversity of vegetables. Chili peppers are incorporated into chili oil, integrated into various pastes, vinegars, fermentations, powdered and dried, cooked whole into dishes. Peppers in many parts of China are commonly dried to bring out their umami flavor, and then powdered or rehydrated and cooked with.

While growing a Chinese Five Color chili this year, and trying to uncover more about its story, I showed the plant to a friend. She quickly pulled up a photograph from her travels in Mexico visiting traditional farmers, showing me a chili plant that looked nearly identical to the unique purple flower flowered, Chinese chili with dark foliage and a rainbow of fruit colors that I had grown.

I'm reminded of that I'm sure there is a wealth of stories still to be uncovered about the chili peppers' varied journeys into different regions of Asia from the Americas, that are beyond the simplistic narrative of travel through settler colonialism. While Western taxonomy classifies all peppers into the genus Capsicum, and the chili peppers that are cultivated generally fall into five species (C. pubescens, C. baccatum, C. chinese, and C. annuum) the array of diversity in flavor, taste, shape, plant form, and ultimately uses, are beyond our imagination. Chili peppers have been an important component of traditional food preservation as well, with great storage capacity through drying, pickling, and fermenting.

BOTANICAL OVERVIEW

While grown in so many regions of the world, chili peppers require a sufficiently long growing season, and enough hours of warmer temperatures to fruit as productively as they can. Though they can exist as perennial shrubs in their native environment, peppers will not thrive in temperatures below 50F for long periods. Successful pepper growing requires adequate length of season, and ideally temperatures between 75-90F for successful fruit production. You will want to grow as healthy and robust of a vegetative plant early in the season, so that you can get adequate fruit production before temperatures in the fall begin to drop.

On the central coast of California, we typically begin seeding chili peppers in the greenhouse in late January to early February. We usually plant out in late April/early May, with fruit beginning in August, and peaking into September. Plan for your peppers to be in the ground most of the season, and plant into reasonably fertile soil that can sustain them for this period. April and May are a good time to plant chili peppers. They will be sensitive to frost, so we want to be well beyond frost if possible.

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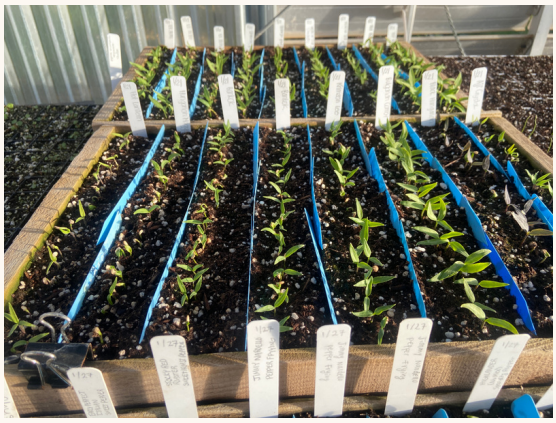
GETTING STARTED



Early germination in greenhouses is ideal, and pepper seeds love to receive extra bottom heat during early growth. An easy way to provide this is an electric heat mat. Prepare a nice fine seed bed. We like to grow peppers in a row, in an open flat at high density in order to maximize our growing space. Lay pepper seed in a shallow trench, they can be as close as one millimeter apart.

Pepper seedlings are sensitive to fungus organisms in overly wet soil, called “damping off”. In order to prevent damping off, allow an adequate dry down of the soil so that seeds are not overly wet. Place your trays on electric heating mats, creating an ideal soil temperature of 80F. Pepper seeds are slower to germinate than many other vegetables we grow.

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SEEDLING STAGE

Pepper seedlings should be moved up into larger plug trays or pots once their true leaves emerge. A good sign of when to move peppers into a larger container is when they have a branching root system along with one of two sets of true leaves.

In a protected greenhouse environment, the tender leaves of pepper seedlings are very attractive to aphids, so keep a watch out. If you spot some aphids, remove them by gently washing leaves, or spray with a mild soap.

From seeding, it can take around 11-14 weeks to grow a strong, healthy chili pepper seedling ready for transplanting. Allow 1-2 weeks for hardening off time outside your greenhouse environment, to allow the plant to become acclimated to the outside environment. When ready for transplanting, plants should have several sets of true leaves, and a well developed root ball.

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PLANTING

Peppers have the ability to produce roots from nodes on their stems, so planting them deeply (burying part of the stem, including a few leaves) will encourage growth of a strong root system and good anchorage. Once strong seedlings are transplanted, they are fairly resilient. Make sure to water in well after planting. Chili peppers need decent levels of fertility to grow a strong leaf canopy, so you may need to provide some extra fertility during the growing stage. We use a mixture of kelp and fish emulsion as a liquid application to the soil.

Once established, pepper plants are resilient, and benefit from a wet-dry swing in soil moisture. They are sensitive to overly wet soggy soil that remains wet. Some types of chili peppers will benefit from light staking to hold plants up, if they have a heavy fruit set or grow tall. Once out in the field, chili peppers do not usually have too many insect pest problems.

HARVESTING

Peppers benefit from consistent harvest. Regular harvest will encourage fruit production. Most chili pepper varieties can be plucked from their stems with a quick twist of the wrist. Retaining the stems and calyx on chili peppers will help them store better and prevent rotting. If you are growing for seed, you don't need more space than you would for plants if just growing for eating.

However, remember that if growing for seed fruits should be as mature as possible. There is a range of time windows in which to harvest chilies. Some are harvested when green and fresh, for pickling, eating, or cooking. Others are harvested when red-ripe mature. Sometimes, others are even left on the plant to near drying. With more red color and maturation time, both the sugar content and vitamin A content of chili peppers increases.

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HARVESTING SEED

If you plan to save seed from your peppers, remember that saving seeds can become a process of breeding, depending which plants you choose to save seed from. Peppers are commonly self-fertile, and flowers contain pollen producing and fruit producing parts. However, they have chasmogamous flowers that can be cross pollinated by insects with most cultivated varieties, so if you are growing more than one variety of chili peppers, you may see some genetic mixing in the next generation of plants. Plants can be isolated to collect seeds that are true to variety through isolation caging or through planting with enough distance or physical barriers between plants.

When collecting fruit for seeds, consider the shape, color, and size of the fruit, the flavor and level of heat, as well as the plant health and form from which you are selecting the fruit. Remember that healthy, robust plants produce seeds that are the strongest and most well developed.

Chili pepper seeds can be collected in several different ways. Thinner skinned chilies can be set out to dry on screens or hung in a strand, with plenty of air circulation. Regardless of the technique you use, be sure to protect your eyes and nose, and other sensitive parts. When processing chilis, tiny particles of capsaicin may fill the air, even when processing smaller amounts.

CHILIS AT A GLANCE

SUN:
Full to partial sunlight.

PLANTING DATE:
Plant after any threat of frost, once soil has warmed, end of May through mid-June

OPTIMAL GERMINATION TEMPERATURE:
75F

PLANTING DEPTH:
a couple inches deeper than the soil level of a seeding

MOISTURE:
Moderate. Deep, infrequent waterings. Avoid oversaturation of soil.

DAYS TO MATURITY:
90+ days from planting seedlings

SOURCES

"The Chili Pepper in China: A Cultural Biography (Arts and Traditions of the Table: Perspectives on Culinary History)" by Brian R. Dott