

# FRUITION SEEDS

guide to organically growing

# PEPPERS

## AT A GLANCE

**Latin Name:** *Capsicum annuum* (most common)

**Sun:** Full

**Life Cycle:** annual

**Ease of care:** Moderate-difficult

**Direct sow or transplant:** Transplant only

**Height:** There are many factors! Though peppers in a greenhouse may reach 4' or more, plants in the garden are typically 2.5 to 3'.

**Container Friendly:** Yes, 10 gallons or more recommended

**Microgreens & Sprouts:** No

## TYPES OF PEPPERS

*Native to what we now call Central America, peppers fruit in an delectable diversity of colors, shapes & sizes. Though some ripen green, the vast majority of peppers ripen from green to red, yellow, orange, purple and any number of vivid colors as their seeds mature. Classic green peppers are simply unripe red peppers, it's true!*

*Colonization swept peppers across oceans & continents, quickly becoming beloved in cuisines as well as medicinal traditions across the globe. There are five main species of domesticated pepper with one, *Capsicum annuum*, being the most common species thriving here in Zone 5. With a touch of regional adaptation, *C. chinense* as well as *C. baccatum* also thrive in short seasons.*

**Sweet Peppers** come in all shapes, sizes and colors, producing none of the spicy capsaicin of hot peppers. For the sweetest sweet peppers, let your fruit ripen from green to their color at maturity.



*Though some ripen light green, the vast majority of peppers ripen from deep green to red, yellow, orange, purple and any number of vivid colors as their seeds mature. Some varieties are many colors, like our 'Collage' pepper we fondly call 'Between the Lines.'*

**Hot Peppers** come in all shapes, sizes and colors as well, producing minimal to massive quantities of searing, medicinal capsaicin. Hot peppers are least hot when their flesh is green, full of immature seeds, and most hot at their 'mature' color (often red or orange) full of mature seeds.

**Think Outside the Bell** Though many of us imagine big bells when we think sweet peppers, the diversity of sweet peppers range from tiny spheres (like blueberries!) to ribbed fruit the size of golf balls, from long, wide tapered triangles to fabulously snackable fruits the size of a large thumb. In a rainbow of red, orange, yellow, purple, lime green and beyond! And that is only the be-

ginning. Imagine if there was only one green iceberg lettuce in the world? How marvelous it is that we have a rainbow of colors, shapes & textures of lettuce to savor! Enjoy diving into the delectable diversity of sweet peppers beyond the bell.

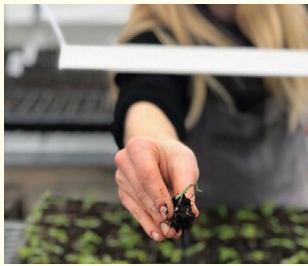
## SOW

Peppers are challenging to grow from seed and stressed seedlings resist abundance, so we recommend starting your own peppers when you have a heat mat, grow light & ample energy to devote to potting them up. Enjoy our 40-page book *Rise & Shine: Starting Seeds with Ease* for step-by-step instructions! You'll find paper copies at [www.fruitionseeds.com](http://www.fruitionseeds.com) as well as our free download of the ebook.

**Goal:** Healthy, vigorous seedlings that are relatively short and stout (not 'leggy'), deep green (unless it's a purple-leaf variety) and potted up before showing signs of stress.

**Common Mistakes:** Starting pepper seeds **without a heat mat** leads to low germination rates since 85°F is their optimum germination temperature. **Starting pepper seeds too early**, especially if you don't have a grow light, grows stressed seedlings that will struggle to fruit abundantly. **If you don't have a grow light or full-light greenhouse**, it's often more rewarding to purchase gorgeous pepper transplants instead. Also, peppers struggle if they experience nights below 50°F, so sowing seeds even later than you think & not rushing to transplant them will often surround you with the most abundance.

*Days to germ:* 7 to 10 at 85°F  
(heat mats make all the difference)  
*When:* 6 to 8 weeks before last frost  
*Direct sow/transplant:* Transplant only  
*Spacing in row:* 12" to 18"  
*Spacing between rows:* 18" to 24"  
*Seed depth:* ¼ inch



*Mini soil block:  
Once 1 seed sprouts 1st set of  
cotyledon leaves, pot up to...*



*Large soil block: When 2nd set  
of true leaves emerge, pot up to...*



*Cell tray: Sow 2 to 3 seeds & thin to strongest 1;  
once 2nd set of true leaves emerge, pot up to...*

**Seeds per soil block/cell:** 1 per mini soil block, 2 to 3 in larger soil blocks/cells thinned to the most vigorous 1

**Preferred seed starting method:** We love to sow peppers 1 seed per mini-block, into a tray on a heat mat, for the quickest and highest germination. Once the first cotyledon leaves emerge, we 'pot them up' (see below) into large soil blocks. When the second set of true leaves emerge, we pot them up into 4" containers.

If you're sowing into a cell tray on a heat mat, sow 2 to 3 seeds per cell, thinning to the strongest 1 and potting up into a 4" container one the second set of true leaves emerge. Resist using egg cartons & jiffy pots to start seeds, Friends! Enjoy our blog, *Egg Cartons are for Eggs: Six Effective Containers for Seed Starting*.

**Potting Up:** Potting up peppers is essential, allowing your seedlings to continue vigorous growth, experiencing the least stress possible. Pot up early and often! Water just prior to potting up to minimize root disturbance. Nutrient-dense potting mix makes all the difference, reducing the need to pot up as often. Be sure to not bury any of your pepper seedlings' stems as you pot up, so they will resist rotting and damping off.

### When to Pot Up

*Pot up peppers, tomato, eggplant early & often!  
~ note: images are not only of peppers ~*



*4" container:  
If you have more than 4 sets of true leaves,  
pot up to minimum 6" container*



*Though the the first 'cotyledon' leaves of some peppers are purple, like our Collage | Between the Lines sweet snacking pepper, most are bright green.*

**Watering Seedlings:** Bottom-watering is best (see our blog, *Bottom Watering is Your New Best Friend*, for full details) and only overhead water after letting the top millimeter of your potting mix dry out, preventing algae growth on the surface as well as damping off.

**Feeding Seedlings:** We feed our pepper seedlings once they have 2 sets of true leaves, spraying their foliage with dilute fish emulsion every 10-14 days.

**Succession sowing:** Since peppers require a long growing season, continuing to fruit more abundantly with time, care and fertility, we do not succession sow peppers.

**Companion planting:** We love to tuck quick-growing greens and herbs between our peppers when we transplant them to harvest within 6 weeks when the pepper canopy fills in. Try baby leaf lettuce and mesclun mix, radish, dill and cilantro, even baby basil! Your goal is to fill empty space while not shading or crowding your peppers.

**Fertility Considerations:** Peppers are hungry! There is a direct relationship with quantity & quality of nutrients available and the quality and quantity of abundance you'll harvest. This is true except for Habanada, intriguingly, which prefers only moderate fertility to fruit abundantly. Also, peppers require abundant phosphorus and calcium for proper flower and fruit growth. Too much nitrogen produces abundant foliage rather than fruit. Fruition's Fish & Kelp Emulsion is optimally balanced for fruiting plants like peppers, which we foliar feed every 2 to 3 weeks until just before frost.

## ❧ HUNGRY FOR MORE SEED STARTING INSIGHT? LET'S DIG IN! ❧

- ◆ Join our free Seed Starting Academy online at [www.fruitionseeds.com](http://www.fruitionseeds.com)
- ◆ Dive into our 40-page book *Rise & Shine: Starting Seeds with Ease* for step-by-step instructions! You'll find paper copies on our website as well as our free download of the ebook.
- ◆ Enjoy our video tutorial and blog, *7 Steps for Gorgeous Tomato, Pepper & Eggplant Seedlings Plus Common Mistakes to Avoid*.
- ◆ If you're growing in containers, enjoy our free online mini-course, *8 Keys of Container Gardening*.
- ◆ Don't miss our two garden planning Guides! One is 'practical,' *Fruition's Guide to Garden Planning* on our blog and the second, *Garden Planning with Robin Wall Kimmerer*, is a more holistic approach.

## CULTIVATE

**Soil & Sun:** Peppers prefer well drained fertile soils with a pH of 6.3 to 6.6 in full sun.

**Transplanting:** It's critical to 'harden off' your seedlings, acclimating them to life outdoors for 4 to 7 days before planting them. Plants can get sunburned, too! Slowly increase their sun exposure during this time. Just before transplanting, shower your seedlings with water or dilute fish emulsion to loosen and feed their roots, mitigating transplant shock. Dig a hole large enough for your seedling's roots, adding a handful of compost or a dusting of our slow-release organic fertilizer to the bottom. Remove your seedlings from their containers, back-fill their roots in the hole without covering any stem and gently tamp down the soil around each seedling base, reducing air gaps.

**Weeding:** Peppers are easily out-competed by weeds. Mulch is marvelous! Darker mulches both suppress weeds and increase heat, which peppers love. Covering peppers with hoops and floating row cover is another way to increase the heat your peppers experience and because peppers are self-pollinated, they'll still fruit without pollinators under the row cover.

**Feeding:** Well-fed peppers surround you with abundance! We share a handful of compost and a dusting of our granular slow release organic fertilizer in each hole as we transplant our peppers. We then feed our peppers with dilute fish emulsion, either as a root drench or foliar spray, every 2 to 3 weeks until 1 to 2 weeks before frost.

**Pruning:** Peppers are not generally pruned though we often 'prune' their flowering tops about 4 weeks before we anticipate frost to help the plant focus on maturing the fruit already set before the frost comes.



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**Pests:** Delightfully, we rarely have pest insects on our peppers and may the same be true for you! Though they're rarely a setback for peppers, aphids will often accumulate on the undersides of leaves, especially if you're keeping them under row cover to increase the heat your peppers experience. Hand-squishing is the most 'organic' method to curb aphid populations; spraying neem oil and insecticidal soap will deter them, as well.

**Disease:** In the Northeast we rarely have debilitating diseases on our peppers, though Bacterial Leaf Spot can become an issue if you grow peppers in the same location for years and don't move dead plants to your

compost in fall. Rotating your plant families throughout your garden helps reduce both disease and pest insect pressure. Peppers are part of the 'solanaceous' or 'nightshade' family including tomatoes, potatoes, eggplant, tomatillo and ground cherry. If you can grow plants from other families at least 3 years between your solanaceous plants, you're setting yourself up for success!

**Staking:** With balanced fertility, peppers in our gardens rarely grow taller than 2.5 to 3 feet, growing stout enough to not require staking. Peppers in our high tunnels grow 4 feet and often more! These we support with strong posts every 6 feet, stringing twine taut and horizontal between the posts, adding a new layer every foot.

**Season Extension:** Peppers are most prolific with abundant heat, so anything you can do to increase the heat your pepper plants experience will amplify your abundance. Hoops and floating row cover often amplify your abundance in summer and extend your harvest well past fall frost.

## HARVEST

Though some remain green, the vast majority of peppers ripen from green to red, yellow, orange, purple or any number of glorious colors as their seeds mature. Classic green peppers are simply unripe red peppers, it's true! Flavors deepen as peppers ripen their seeds. Sweet peppers grow more sweet with maturity; hot peppers grow more hot.

Peppers are not generally pruned though we often 'prune' their flowering tops about 4 weeks before we anticipate frost to help the plant focus on maturing the fruit already set before the frost comes.

At season's end, when the inevitable killing frost is imminent, we harvest the last of the peppers. We harvest even the tiniest green fruit which we love to pan-sear whole with plenty of oil, salt & pepper.

Our friend Will Bonsall loves to pull up his pepper plants just before frost, hanging them in a warm, light-filled space to encourage the fruit to continue to ripen a few more weeks.



*Peppers are generally most sweet when they are most 'ripe,' though we love to taste peppers at all stages of maturity, delighting in the nuances of flavor.*

## SEED SAVING

**Life cycle:** Annual (in Zone 5, though perennial where it never freezes)

**Self or Cross-Pollinated:** This is a misrepresenting binary, since peppers are considered 'self-pollinated' or 'selfing' though they readily cross-pollinate within 100 feet. If you're committed to your peppers not crossing, maintain 100 feet between sweet varieties and separate them at least 300 from hot varieties, whose dominant heat gene is dominant, indeed!

**Wet or dry-seeded:** Wet

**Qualities to select for:** Above all else, deliciousness! Early vigor, early fruiting, abundant fruiting, stout and strong architecture are also important.

**When to harvest:** The vast majority of peppers ripen from green to red, yellow, orange, purple or any number of glorious colors as their seeds mature. Mature seeds are harvested from mature fruits allowed to fully ripen on the vine. We love saving pepper seed because we get to 'have our cake (save our seed) and eat it, too!'

**Seed Cleaning Notes:** Removing the seeds from sweet peppers is simple with your hands. Hot peppers can 'burn' your fingers, making them painfully inflamed for several hours to several days, so we always use gloves.

Once you've separated your seeds, place them into a bowl of water for 6 to 12 hours, allowing the mature seeds to sink and immature seeds to float to the surface. Pour off the light, immature seeds and rinse your mature seeds well before immediately drying them on screens. If not screens, dry your seeds on another surface where air can flow from below as well as above, as much as possible, so your seeds dry as quickly as possible. To increase humidity-wicking airflow, we have a fan gently blowing on our drying seed. Fully dry seed will break rather than bend.

**Seed storage & viability:** Like all seeds, dry, cool and dark conditions increase the shelf-life of your pepper seeds. Expect 3 to 4 of great germination when your pepper seeds are stored well. Enjoy our blog about seed storage, including freezing techniques, on our website.

**Special Considerations:** Though most peppers are *Capsicum annuum*, we are able to grow several other species here in the Northeast. Distinct species don't cross in the textbooks, though we've heard of experiences otherwise! We recommend separating all your peppers, regardless of species, if you're committed to them not crossing.

## BEST OF THE BLOG

### Fruition's Guide to Growing Peppers

7 Steps for Gorgeous Tomato, Pepper & Eggplant Seedlings  
Plus Common Mistakes to Avoid

How Long Do Seeds Last?  
Fruition's Secrets to Storing Seeds

*Enjoy the videos with each of our varieties online, as well!*

Insight & inspiration daily!

 FruitionSeeds

 @fruition\_seeds



*Growing your own pepper seedlings is challenging & so worth it!*

## OUR VARIETIES: SWEET PEPPERS



**ORGANIC AJÍ DULCE LINE 7**  
With rich, tropical sweetness, Ají Dulce is an essential ingredient for sofrito and many other Caribbean dishes. She's become essential for our gardens and kitchens, as well! Native to the Caribbean, Ají

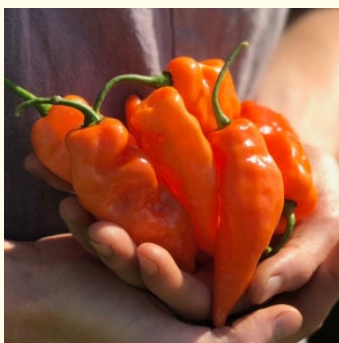
Dulce ripens from lime green to red for her fullest flavor and Friends, we are thrilled to share this seed as we select her to ripen readily and thrive here in the Northeast.



**ORGANIC COLLAGE | BETWEEN THE LINES**

Tunde Wey reminds us, 'the last thing, at the end of the day, that food should be talking about is itself.' Together, Friends, let's read & eat Between the Lines.

Of course she's delectably sweet and crunchy, early and abundant, incredibly gorgeous both in foliage, flower and fruit...and so ready to tell us so much more, if only we might listen.



**ORGANIC HABANADA**  
Habanada is our favorite pepper, without question. We've tasted nothing else like it: She's tropical, luscious divinity. My first bite I'll never forget: I couldn't help but bite gingerly, expecting the fire of

Habanero. But then the revelation of impossibly floral, tropical sweetness, without even a hint of heat.



**ORGANIC MOUNTAINEER**

A long, tapering sweet pepper, Mountaineer is impressively prolific with bright, floral sweetness for snacking as well as supper. Each plant is short and stout, fully focused on fruit rather than foliage.

Will Bonsall, thanks for sharing with the world yet another marvel from Khadigar!

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## OUR VARIETIES: HOT PEPPERS

*from most to least hot*



### ORGANIC MAGNUM HABANERO

The key ingredient in Jamaican 'jerk' sauces, Habanero is one of the world's most popular hot peppers with a blazing 210,000 units on the Scoville scale.

Magnum Habanero is the classic brilliant orange bonnet-shaped scorcher with vigorous plants remarkably tolerant of cool conditions ensuring abundance even in the Northeast.



### ORGANIC CHINESE FIVE-COLOR

Brilliantly adapted for short seasons, each plant has variegated green and yellow foliage tinged with violet with dozens of brilliantly-hued and righteously spicy peppers. With ten

times the heat of a jalapeno on the Scoville Scale, Chinese Five-Color is perhaps boring for the serious heat freaks but plenty to work with for the rest of us.



### ORGANIC PADRON FRYING

Shishitos are lovely but pass the Padrons, please! The Spanish have prized Padrons pan-fried as tapas since the 1600s. Since they're harvested as young 1-2" green peppers, Padrons are im-

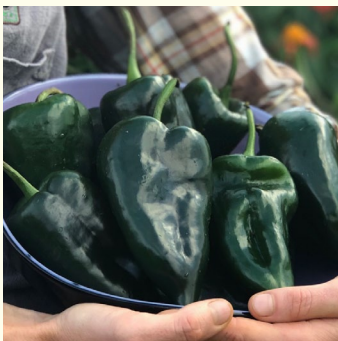
pressively prolific. Though harvested young to avoid the searing heat, 1 in 20 strikes with serious heat for a game of roulette we adore, so long as there is enough aioli!



### ORGANIC EARLY JALAPENO

These are the earliest jalapenos we've found, impressively prolific in our short seasons. Readily ripening red, we love pickling jalapenos as well as turning them into hot sauce. We also smoke

the red fruit to make our own chilpotles! Since Early Jalapeno is so compact, she also thrives in containers.



### ORGANIC ANCHO POBLANO

We love a lot of peppers and few we love as well as Ancho Poblano. Her mild heat with the rich, fruity sweetness makes her a perennial favorite for stuffing, roasting, sauces, chile powder and chile rellenos.

Dark green, immature 'poblano' peppers are perfect for stuffing and rellenos; red, mature 'ancho' peppers make phenomenal chile powder when dry. The stout architecture of ancho poblano makes her ideal for containers as well as gardens and most impressive of all, she is reliably abundant even cool summers.

**Our favorite recipes:** *We love stuffed peppers and kabobs on the grill all summer, as well as roasted red pepper/walnut spread to accompany, well, everything. Tossed in salads and grilled for sandwiches, there are just so many ways to enjoy peppers! And of course, making many versions of lacto-fermented hot sauce is a glorious annual tradition, as well.*

**Preserving the harvest:** *Roast or grill sweet peppers whole and puree to freeze for luscious sauces and soups all winter! Habanada and Aji Dulce pickle whole fabulously. Hot sauces of all kinds are fabulous ways to enjoy your peppers in all seasons as well as hot pepper jelly, salsa, relish and don't forget about dried pepper flakes!*