

FRUITION SEEDS

guide to organically growing

CARROTS

AT A GLANCE

Latin Name: <i>Daucus carota</i>	Sun: Full	Life Cycle: Annual
Ease of care: Moderately difficult (one of the most challenging, but also SO rewarding!)		
Direct sow or transplant: Direct sow	Height: 18"	
Container Friendly: Though not easy, 10+ gallon containers can grow decent carrots, particularly the 'ball' types like Paris Market.		
Microgreens: No	Sprouts: No	

The center of carrot diversity hails from the Himalayas where their roots are thin, white & greatly branching. Moving in both directions on the Silk Road, purple and yellow carrots were domesticated in the 10th century in Asia for both edible and medicinal purposes. Europe was less enthusiastic, captivated by the more popular parsnip until orange carrots emerged (from yellow carrots) in the 17th century in Holland. The carrots we cultivate are indeed the same species as wild carrots which thrive around the world in temperate zones, even before colonization, including Queen Anne's Lace here in North America. The root of 'carrot' (pun intended) derives from the Latin 'carota,' created specifically to describe this fabulous phenomenon.

TYPES OF CARROTS

SIZE

Danvers The quintessential carrot, long and skinny, tapering to a point and most often orange. 'Yellowstone' is a classic Danvers type.

Nantes Named after the Atlantic coast of France where this carrot type flourishes, Nantes have blunt, rounded roots rather than tapered. Quick to grow and also mature, the flavor of Nantes types is often much richer than other carrot types. 'Dulcinea' is a classic nantes-style carrot and delightfully long-storing.

Imperator Frequently found in grocery stores, these roots are similar to Danvers but thicker in width and often growing longer in ideal conditions.

Chantenay Often only 6 or 7 inches long, Chantenay carrots



Enjoy savoring the delectable diversity of carrots, Friends!

are second only to ball types in containers and rocky, clay soils. Though long-storing, it's critical to harvest Chantenay types promptly since they quickly become woody and lose their sugars.

Ball Often the size of a golf to tennis ball, these deliciously heart and ball-shaped carrots thrive in containers as well as rocky, clay soils. 'Paris Market' is a quintessential ball carrot.

COLOR

In addition to orange, carrots also grow in a glorious rainbow of yellow, red, purple and white. Some varieties like 'Dragon' have purple skin with orange flesh and often a yellow core. Orange is often the most sweet as well as flavorful, though so much depends on soil and variety.



Freshly dug carrots, brilliantly sweet and oh so crunchy, are among the most rewarding moments of my childhood garden. I especially loved the carrots twisted, spiraling around one another! And Friends: My first carrots were darling but would never have flown at a farmer's market. It's true: Straight carrots that are long and strong are impressively challenging to grow, so often surrounded by weeds and accompanied by frustration. We hope this guide helps!

SOW

Carrots are not easy to grow and if you struggle, you are *so* not alone! Dive into our free mini-course, *Growing Carrots with Confidence*, to boost your skills and reap the rewards of the challenge. Join us at www.fruitionseeds.com

Direct sow: Like other root crops, carrots do not tolerate the root disturbance of transplanting.

Keys for Carrots:

- ~ The straightest, smoothest roots are direct sown in rich, loose soil.
- ~ Maintain consistent moisture to provide even, abundant and early germination.
- ~ Thin once seedlings are one inch tall.

Soil Preparation: Carrots thrive in rich, loose soil with a pH between 6.0 and 6.8, especially where there are few rocks and moisture can be well maintained. We always add compost as well as organic, slow-release fertilizer to our soil before we till or double dig a bed for carrots. Soil prep makes all the difference for all seeds and especially carrots, Friends.

Days to germ: Carrots can be challenging to germinate well, often taking 7 to 21 days to emerge, depending on the temperature and soil moisture.

Optimizing Germination with Row Cover: Even, ample moisture as well as abundant warmth are crucial for germinating carrots. Between 77°F, 25°C and 83°F, 28°C is optimal. Be sure you're sowing into an already moist bed; if your bed is dry, water the soil one day before you sow to moisten soil. After sowing, to maintain even moisture, spread a layer of floating row cover over your freshly sown bed. We reserve our old, tattered row cover for germinating carrots and parsnips, it's true! Gently water in your freshly sown seeds, letting the row cover soak in the moisture and adhere to the ground. Warm-

ing the soil and protecting your seeds and soil from rain displacement, carrot seeds often germinate in a fraction of the time under row cover. Once your seedlings are an inch tall, remove the cover and thin right away.

When: We sow carrots 2 to 3 weeks before the last frost and again every 3 to 4 weeks until about 8 weeks before final frost. Here in the Finger Lakes, we sow from late April through early August for a constant harvest of tender, sweet roots.

Spacing within rows (a row may be a single row or a ~2 inch band): Sow 2 seeds per inch, thinning to 1 seedling every 2" for full-sized roots. Pluck and savor the thinned 'baby' carrots along the way!

Spacing between rows: 10 inches to 16 inches

Seeding depth: ¼ to ½ inch

Common mistakes: Not watered evenly when sown and as seedlings, carrots struggle to thrive. When not thinned early and often, carrots resist growing into large, sweet roots. Growing in rocky, clay soil as well as containers is often a struggle for carrots who prefer to grow in rich, loose soil. If your carrots are forked or branching, they encountered rocks and/or were hungrily searching for nutrients.

Succession sowing: Carrots can be sown early spring through late summer. Keep in mind that cooler soil temperatures increase days to germination, increasing the weeding you'll likely do. We sow carrots 2 to 3 weeks before the last

frost and again every 3 to 4 weeks until about 8 weeks before final frost. Here in the Finger Lakes, we sow from late April through early August for a constant harvest of tender, sweet roots. Early August is the final call for full-size, full-flavor roots to mature before frost in the Finger Lakes! Maturing into the fall, that last succession will be the sweetest, with their starches turned into sugars in the cooler weather.

Companion planting: You can interplant radishes every 6 inches in your freshly sown carrot rows. Brilliantly, the radishes germinate after only a few days and show us where our rows are as we wait for the carrots to come up,

allowing us to weed around the carrots confidently even before they germinate.

Growing Rainbow Carrots: People often ask why we don't share packets of 'rainbow' carrots. Here's the thing: Different varieties grow at different rates with unique 'days to harvest,' not to mention that germination is also variable between different varieties. Growing all carrot colors together is fun to imagine though rarely effective, alas. Don't worry, you can still grow the rainbow! Simply sow each carrot variety separately rather than together to surround yourself with abundance.

CULTIVATE

Soil: The longest, sweetest carrots thrive in deep, loose & fertile soil with ample moisture, and like other root veggies carrots fail to grow large roots in compact or dense clay soil. Maintain consistent moisture to inspire even, abundant and early germination.

Fertility Considerations: Be sure to test your soil, if you haven't in the last year; our *Soil Testing Made Simple* will set you up for success. Incorporating compost and other organic soil-building fertilizers prior to planting will make a tremendous difference.

Thinning: Thinning is crucial to grow fabulous carrots. Thin carrots as soon as their first true leaves appear, ideally when they are 1 inch tall and taller than 2 inches. Great news: these thinnings are delicious! Continue to thin as the weeks go by, enjoying tender, baby roots as you make space for your longest, widest roots.

Weeding: As with all direct-seeded crops, it's important to stay on top of weeding to give seedlings the chance to grow without competition. Once plants are established (and won't be hindered by it), mulching is an excellent way to reduce weed pressure while retaining moisture.

Feeding: If you're eager to boost the health and nutrient-density of your carrots, foliar feed or root drench every two weeks with dilute fish emulsion or compost tea.

Pests: Though generally not a nuisance, Carrot Rust flies and Wireworms sometimes munch carrots here in the



Carrots are challenging to grow for a lot of reasons! Often taking 2+ weeks to germinate, carrots require a lot of weeding and thinning your carrots before they're as tall as the seedlings above is crucial.

Northeast. Floating row cover is an easy way to exclude the adults of these pests and thus thwart their enjoyment of your carrots. By contrast, voles are as common as they are voracious, especially in fall. To deter your voles, leverage their love of darkness: Set traps in upside-down boxes with a hole cut out for them to scamper into. We've found peanut butter to be effectively enticing! And alas, mulch only makes voles more comfortable, so we tend to not mulch our carrots. We also promptly harvest their roots in fall before they get munched, as well.

Diseases: Though also not generally a bother, Bacterial leaf blight, Alternaria leaf blight and Cercospora leaf blight are all reported each year here in the Northeast. The symptoms of all three of these diseases start as small dark spots on the leaves of carrots and spread, eventually causing the leaves to die back. These leaf-affecting diseases are encouraged by wet, hot conditions, so avoid overhead watering if possible. The pathogens causing these diseases can live on in the soil so long as there is any part of a carrot plant there, so rotate crops and remove sick or dead plants entirely from your garden, taking care to clean up at the end of the season.

Here are the easiest ways to prevent disease in all plants: Nutrient-dense soil grows healthy plants with vigorous immune systems; overcrowded plants are more susceptible to disease; water soil rather than leaves in the morning rather than evening to reduce leaf humidity. Crop rotation always helps! Finally, disease-resistant varieties make

a huge difference, though even disease-resistant varieties may not thrive with cultural practices.

Season Extension: Carrots are cold-hardy but not as cold-tolerant as spinach! We cover our final succession of

carrots with hoops and floating row cover about 3 weeks before first frost (about mid-September here in Zone 5), once the night temperatures are dipping consistently below 45°F, 7°C. This extra warmth helps them continue to grow large well into the depths of fall, well after first frost.

HARVEST & STORAGE

Carrots can be harvested and enjoyed at any size, though we've found the best flavor and texture to arrive just before the 'days to harvest' or 'days to maturity' of a given variety. We love to taste carrots at all different stages, so enjoy getting to know the expansive range of carrot flavor and texture, Friends! After about three weeks, full size carrots can crack and become woody, though cooler fall temperatures and Nantes-style varieties (like *Dulcinea*) prolong harvests.

Especially if you're hoping to store your carrots all winter, give your carrots a wide berth as you dig them. We often place the digging fork one foot away from the car-



rot row, just to be sure we don't puncture any roots unintentionally. Enjoy any roots that do break within a week or two! To store carrots that don't break, shake off excess soil but resist washing your roots, since a layer of soil helps them store. After snipping back the foliage to within 1 inch of the root, tuck your carrots into a closed bag in the fridge, washing only those you'll enjoy for the next

week or two. In root cellars, carrots are stored at 32°F, 0°C with 98% relative humidity. Some varieties like *Dulcinea* sweeten in storage and others do not! Though carrots may over-winter in the ground under enough mulch, we find voles help themselves to the roots before we do.

SEED SAVING

Friends, saving carrot seed is deceptively simple!

Life cycle: Biennial

Self or cross-pollinated: Cross-pollinated, isolation 1 mile or cage. Queen Anne's lace is the same species as carrot (*Daucus carota*) so remember that carrots need to be isolated from Queen Anne's lace, too.

Minimum Population Size: All living populations suffer from inbreeding depression and carrots are particularly prone. A minimum of 75 plants and ideally 100+ is optimal for carrot genetic diversity and resilience.

Qualities to select for: Root flavor, color and shape; days to germination; leaf quantity, architecture and strength.

Wet or dry seeded: Dry

Root harvest for Seed (Year 1): Carrots grown for seed are ideally sown about 100 days before final frost giving them enough (not too much!) time to size before frost. Gently dig your roots and trim back any leaves within

1 inch of the crown, storing your unwashed carrots below 50°F, 10°C with 98% relative humidity for at least 10 weeks. This time allows your carrots to 'vernalize,' ensuring your roots have experienced a 'winter' sufficient to trigger flowering re-growth once replanted.

Tasting Carrots: Taste each root to make selections, Friends! Carrots quickly revert back to their bitter, pinesol-esque ancestry, so tasting every single root to impressively essential. We wash off the lowest third of each carrot, cutting on a 45 degree angle (which helps the root re-grow when re-planted) to taste. Enjoy experiencing the wide range of sweetness, of carrotiness, of bitterness and beyond! For a behind-the-scenes glimpse of our carrot tasting, hop on our blog.

Replanting Carrots: Set out roots as soon as soil can be worked, planting out with one foot within rows and two feet between rows. Bury roots with soil just up to the crown. Your carrots will quickly sprout a flowering stalk with gorgeous white flowers in early summer. We trellis our often 6+ feet tall carrots to prevent the seed



Challenging though they are, carrots are a delight to grow for seed! Their huge, luminous flowers are evidence they share a species, *Daucus carota*, with Queen Anne's Lace, much to the chagrin of seedkeepers in the Eastern US. Since carrots quickly revert to their bitter ancestry, tasting each root in every generation is essential. For a behind-the-scenes glimpse of our carrot tasting, hop on our blog!

stalks from flopping over. You may need to protect your re-planted carrots from voles! See our 'pest' section for how we deter our voles.

Seed Harvest (Year 2): Once seeds have turned from green to gold, we harvest each mature seedhead promptly, especially here in the Northeast: The rain and even dew, even in a high tunnel, decreases the quality of the seed dramatically.

Seed Cleaning Notes: On a dry and ideally breezy day day, harvest the golden umbels and dry for 1 to 2 weeks in a well-ventilated space on screens. Next, gently rub your seed heads on a fine mesh and separate the seeds from chaff using screens and fans. The scent is heavenly!

Seed storage & viability: When stored in optimum conditions, carrot seeds hold their germination up to 6 years. Enjoy our *Secrets of Seed Storage* blog for more tips!

OUR FAVORITE RECIPES:

Roast Carrots with Parsley and Garlic
Grated Carrot Salad with Fennel and Sumac
Coconut Carrot Curry
Carrot Ginger Dressing
Spicy Carrot Hummus
Pickled Carrots with Garlic
Cardamom-pistachio carrot cake
Carrot Ginger Lime Juice

PRESERVING THE HARVEST:

Though we primarily store carrots in our root cellar, we also store them in the form of vinegar as well as lacto-fermented pickles!

BEST OF THE BLOG

4 Easy Ways to Harvest More This Fall

Sowing Autumn Abundance in August

We're all Plant Breeders Now

10 Easy Seeds to Sow in May

Introducing Dulcinea, or
Don't Judge a Carrot by the Cover

Tasting the Next Generation of Dulcinea carrot

3 Keys to Great Carrot Germination

Enjoy our *Seed Starting Academy* for step-by-step video tutorials to surround you with abundance.

Timing is Everything:

Fruition's Seed Starting Calendar

Successful Succession Sowing in July

Ideal Varieties for Container Gardening and Raised Beds

What We Just Learned About Final Frost
(& Happy Memorial Day!)

6 Easy Seeds to Direct Sow in June
(& How to Transplant, If You Must)

7 Seeds to Resist Transplanting

Insight & inspiration daily!



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OUR VARIETIES:



ORGANIC DRAGON CARROT

Dragon is as delicious as she is beautiful! So many purple carrots are tough and notably less sweet than their orange cousins, making Dragon all the more exceptional. She's purple on the outside

with a sweet orange core and occasional rings of yellow, the genius selection of our friend and mentor Dr. John Navazio sharing his iteration of the work of countless generations of brilliant indigenous seedkeepers.



ORGANIC COSMIC PURPLE CARROT

We love carrots and we love purple! Cosmic Purple is the best of both worlds. So many purple carrots are more fibrous and bitter than their orange cousins, but Cosmic Purple is a glorious exception. She's purple on

the outside with a sweet orange core, an absolutely stunning carrot that will nourish you with so much more than calories! We've found that 7-inch roots are the sweetest, most tender stage for Cosmic Purple.



ORGANIC YELLOWSTONE CARROT

We love these long, deep yellow roots with tall, vigorous leaves that out-compete weeds better than most carrots. Organic Yellowstone Carrot keeps her color fabulously when cooked and

stores well into the New Year for us, as well.



ORGANIC DULCINEA CARROT

Don't judge a book (or a carrot) by its cover! Friends, Dulcinea is the delectable fruit of a many year collaboration, though I must warn you: They are long, orange and tapered and at first glance, they are simply

carrots. But they are so much more. And if we've done our work well, Dulcinea will outlast us by countless generations. Dulcinea is one of the sweetest carrots we've ever tasted, growing sweeter in storage, also managing to grow straight regardless of the multitudes of stones in our gravelly loam soil. Dulcinea also grows abundant leaves quickly, making them more competitive with weeds than most. We love Dulcinea in the height of summer and they feeds us through the winter 'til spring in our root cellar, as well.



ORGANIC PARIS MARKET CARROT

HEIRLOOM If you've always struggled growing carrots, a) you're not alone and b) Paris Market are the carrots for you! To be honest, we always thought small, heart-shaped carrots were cute, but why

bother when you could grow and enjoy a full-size carrot? We were so, so wrong. Paris Market is exceptionally sweet and tender, lacking nothing in flavor and here's the thing: If you struggle to grow carrots because your soil is clay or sparse between the rocks or you love to container garden, Paris Market is the carrot for you. Only growing one to two inches in diameter, Paris Market are among the easiest carrots to grow, having more flexibility in their thinning window than classic carrots. Finally, after all these years, we now know why these carrots have been prized in France for generations...



ORGANIC EARLY MILAN NANTES CARROT

An heirloom in the finest sense, Early Milan Nantes is sweet and rich with with distinctive blunt tips. Favored along the French Atlantic coast in the 18th century, we gratefully share this glorious seed

that has stood the test of time. Early Milan Nantes is ideal for spring, summer and fall sowings with roots that store fabulously all winter in our root cellar.