

# FRUITION SEEDS

guide to organically growing

# SPINACH

Native to central and western Asia, spinach began co-adapting with humans about 2000 years ago in ancient Persia, now known as Iran. Moving east, the king of Nepal sent spinach as a gift to China in the 7th Century, quickly becoming beloved as 'the herb of Persia.' Sicilians were the first Europeans to grow fond of spinach in the 1st Century, followed by Spain in the 11th Century, arriving in England in the 14th Century. In the 16th century, Catherine de Medici (of the famous Italian Renaissance family) popularized her favorite vegetable. When she left her home in Florence, Italy, to marry King Henry II of France, she brought her own chefs to prepare spinach in the many different ways she loved. Since this time, dishes served on a bed of spinach are referred to as à la Florentine. When Popeye the Sailor made his debut on January 17, 1929, spinach became the third most popular children's food in America after turkey and ice cream.

## AT A GLANCE

**Latin Name:** *Spinacia oleracea* for classic spinach, *Brassica rapa v. narinosa* for Asian spinach

**Sun:** Full

**Life Cycle:** Annual

**Ease of care:** Easy

**Direct sow or transplant:** Either

**Height:** 6 to 12"

**Container Friendly:** Yes, 5 gallons or more ideal

**Microgreens:** Classic spinach no, Asian spinach yes

**Sprouts:** Classic spinach no, Asian spinach yes

## TYPES OF SPINACH



*Asian spinach's deliciously mild mineral flavor and buttery-crisp texture is so much easier to grow than classic spinach.*

### Classic vs Asian:

Remarkably similar in both texture and flavor, 'classic' spinach (*Spinacia oleracea*) is the most commonly grown & savored spinach in North America. Tatsoi, often called 'Asian spinach,' (*Brassica rapa v. narinosa*) is easier to grow and is quickly becoming a staple in many gardens. Both classic and Asian spinach thrive in the cool soils of spring and fall; tatsoi thrives in the heat of summer, as well.



*With the delectable diversity of spinach types, you can enjoy fresh spinach every month of the year, even here in Zone 5!*

### Smooth vs Savoy:

Classic spinach has been selected to have 'smooth' leaves that are more flat or 'savoy' leaves that are marvelously crinkled. We love savoy leaves that are more lofty in salads, though they tend to be more challenging to clean. Since their flavor and growth are similar, texture is simply a matter of personal preference. There are semi-savoy varieties, as well.

**Baby vs Full-Size:** Baby spinach is simply spinach harvested young! There are no specific varieties for 'baby spinach,' so if you're eager to enjoy baby spinach, sow more closely (either direct or transplanted) and harvest young, when the leaves look fabulously appetizing to you. Whether you're harvesting baby or full-size spinach leaves, harvest the larger, outermost leaves so the small, young leaves at the center regrow to surround you with even more abundance.

**Esoteric Spinach Types:** You'll also find seeds for Malabar spinach (*Basella alba*) as well as New Zealand spinach (*Tetragonia tetragonioides*), both comparable in flavor to classic spinach with some unique differences in how they're grown.

## SOW

**Direct sow/transplant:** Either

**Preferred seed starting method:** Since spinach is equally resilient direct sown as well as transplanted, knowing the pros and cons of both will help you decide which is best for your garden.

### Direct Sown:

**Pros:** It's just so easy! If you don't have a grow light or other seed starting set-up, you're all set.

**Cons:** With direct-sown spinach, you'll need to commit to thinning your plants and weeding them more. You'll also need to sow more seeds to accommodate the thinning.



*Since spinach is equally resilient direct sown as well as transplanted, knowing the pros and cons of both will help you decide which is best for your garden.*

### Transplant:

**Pros:** Transplanted spinach requires less thinning and less weeding, making the most of every seed. If you're into mulching, transplanting is the way to go.

**Cons:** To transplant, you'll need a seed starting setup needed as well as time to care for seedlings. If your seedlings become stressed, they'll quickly bolt (go to seed), reducing your harvest.

**Common Mistakes:** When sown early in soil too wet, spinach seeds will rot rather than sprout. **Classic spinach struggles to germinate well in summer heat**, so resist sowing in the heat of summer. Here in Zone 5, we wait for September to sow classic spinach again. **Sown densely and not thinned**, your spinach will be crowded and bolt (go to seed) more quickly. **Once your spinach bolts**, harvest and enjoy the entire plant rather than removing the seed stalk.

### Days to Germination:

**Classic spinach:** 5 days at 77°F, 31 days at 35°F (between 45 and 65°F is optimal)

**Asian spinach:** 3 days at 77°F, 9 days at 45°F

**When:** Both classic and Asian spinach thrive in the cool soils of spring and fall. Though classic spinach does not thrive (often not even germinating) in the heat of summer, tatsoi is bountiful in both warm and cool seasons.

Though all spinach can be sown as soon as the soil can be worked, waiting for the soil to warm and drain a week or two often hastens germination and reduces weed pressure. Enjoy our succession sowing section sharing how to surround yourself with spinach abundance in every season!

**Seeds per soil block (preferred) or cell:**

**Classic spinach:**

2 seeds per block or cell thinned to 1

**Asian spinach:**

2 seeds per block or cell thinned to 1

**Feeding Seedlings:** Like all seedlings, it's vital to grow spinach in the most nutrient-

dense, compost-

based potting mix you can find. Feeding seedlings over 5 weeks old is critical; since spinach seedlings are only indoors for about four weeks, they don't need or significantly benefit from being foliar fed additional nutrients.

### Spacing within rows

**(a row may be a single row or a ~2 inch band):**

**Classic spinach:**

baby greens: 2 seeds per inch

full size: 10 seeds per foot thinned to 1 plant every 4 to 6 inches (enjoy the thinnings!)

**Asian spinach:**

baby greens: 3 to 5 seeds per inch

full size: 6 seeds per foot thinned to 1 plant every 4 to 6 inches (enjoy the thinnings!)

### Spacing between rows:

**Classic spinach:** 6 inches for baby greens, 10 to 12 inches for full-size leaves

**Asian spinach:** 6 inches for baby greens, 10 to 12 inches for full-size leaves

### Seeding Depth:

**Classic spinach:** 1/4 inch

**Asian spinach:** 1/8 inch

### Succession Sowing:

Spinach is one of the easiest plants to succession sow! Enjoy experimenting and take notes so you can see emergent patterns to amplify your abundance.

Both classic and Asian spinach as soon as the soil can be worked. Here in Zone 5, we generally sow between mid March and early April. We sow a second succession of both classic and Asian spinach two to four weeks later, though please plant sooner if you're keen to enjoy that much more spinach in your life! Classic spinach struggles to germinate well in summer heat, so resist sowing in the heat of summer. Here in Zone 5, we wait for September to sow classic spinach again. Asian spinach, by contrast, is marvelously heat as well as cold-tolerant and can be sown every 2 to 3 weeks throughout the summer for a constant harvest of succulent greens.

September-sown spinach often overwinters uncovered in our gardens here in Zone 5, so we harvest leaves in fall, all winter and well into spring from those seed sown in just about one month before frost. Autumn as well as winter conditions are widely variable, so we sow in early as well as late September, extending our abundance October through May.



**Companion Planting:** As with other small salad greens, spinach can be grown alongside plants with longer days to harvest before becoming shaded out. Sow a row of spinach six inches away from a freshly sown row of peas! Tuck spinach seedlings between your first succession of broccoli! You can also pull back the mulch and transplant spinach seedlings between your rising garlic in early spring, harvesting them before their leaves get close to overlapping with your garlic.

## ❧ CULTIVATE ❧

**Soil:** Classic spinach prefers pH 6.5 to 7.5 while tatsoi is more adaptable to slightly lower pH. Abundant nutrients and well-drained soil grow the most delicious, abundant spinach. Spinach and other 'leaf-focused' plants can be grown in full sun and also will thrive in part-shade more than other 'fruit-focused' plants, especially in the heat of summer. Classic spinach resists germinating in the warm soil of summer, instantly bolting if it does germinate, so only sow classic spinach in the cool soil of spring and fall. Asian spinach thrives in all seasons, germinating quickly in April and August alike.

**Fertility Considerations:** Spinach grows quickly, so focusing on soil fertility is more important than having foliar feeding options. Be sure to test your soil, if you haven't in the last year; our *Soil Testing Made Simple* blog will set you up for success. Incorporating compost and other organic soil-building fertilizers prior to planting will make a tremendous difference. If you're eager to boost the health and nutrient-density of your spinach, foliar feed or root drench every two weeks with dilute fish emulsion or compost tea.

**Thinning:** If you're growing baby leaf spinach, thinning is not necessary. The least stressful time for spinach seedlings to be thinned is once they have one true leaf. If you're growing full-size spinach from direct-sown seed, thin your seedlings once their leaves begin to touch. You can also

thin to half the optimal distance, allowing the remaining plants to continue to grow, thinning them to full-size distance just before their leaves begin to overlap. Either way, know your thinned spinach is delicious, enjoy!

**Transplanting:** Transplant spinach after hardening it off, acclimating it to life in your garden for 4 to 7 days before planting it. Hardening off is essential for all seedlings and especially those being transplanted into cool temperatures. Even though spinach is incredibly cold-tolerant, seedlings grown indoors need this acclimation period to step into their resilience. Their first three days and nights can be cold but ideally not dip below freezing; after that time, they will not flinch as snow flies and may even accumulate in a cold spring. Just before transplanting, shower your seedlings with water or dilute fish emulsion to loosen and feed their roots, mitigating transplant shock. Dig a hole just large enough for your seedling's roots and gently remove your seedlings from their containers. In cells, we squeeze the sides of the cell gently just before we lift it out, separating the soil and roots from the sides so it lifts out at once and with ease. As you gently tamp down the soil around each seedling base, reducing air gaps, be sure to not cover any stem that was above ground as a seedling. Water in with additional dilute fish emulsion to offer even more nutrients for your spinach! If you're planning to mulch, now is the time.

**Weeding:** Classic spinach doesn't grow as quickly as Asian spinach, so be sure to weed early & often to optimize your abundance. Mulching is an excellent way to reduce weed pressure while retaining moisture.

**Feeding:** Spinach grows quickly, so focusing on soil fertility is more important than having foliar feeding options. That being said, the most potent time to feed your spinach is when it is three inches tall. For cut-and-come-again baby spinach, we love to water with dilute fish emulsion immediately after each harvest, encouraging quick & robust regrowth.

**Pests:**

**Classic spinach:** Leaf miners often munch in spring and squish them when you find them. Unchecked, their populations will quickly increase and can jump to your beets in summer. If you want to absolutely nip them in the bud, here are two ways! First, harvest and enjoy the entire affected plant. Second, if the leaf is no longer appetizing to eat, bury it in your compost — not just laid on top of the pile — to halt their life cycle.

**Asian spinach:** Like all plants in the brassica family, flea beetles emerge in spring and though their minute munchings are tiny and damaging only to aesthetics, they're easily thwarted with floating row cover with or without hoops. The same is true for the Imported Cabbageworm, aka cabbage white, whose green larvae can also be picked off by hand. Any nearby chickens will be delighted to receive and promptly devour them for you!

**Disease:** Though infrequently an issue here in the Northeast, classic spinach is susceptible to downy mildew & fusarium wilt. Rarely present at garden-scale, prevention is the best cure. Here are the easiest ways to prevent disease in all plants: Nutrient-dense soil grows healthy plants with vigorous immune systems; overcrowded plants are



*Hoops and floating row cover offer simple season extension, allowing you to harvest spinach (and so much more!) deeper into the cold of spring and fall.*

more susceptible to disease; water soil rather than leaves in the morning rather than evening to reduce leaf humidity. Crop rotation always helps! Spinach is related to beets and swiss chard. Finally, disease-resistant varieties make a huge difference, though even disease-resistant varieties may not thrive with cultural practices. Asian spinach rarely succumbs to diseases here in the Northeast.

**Season Extension:** Both classic and Asian spinach survive impressively cold temperatures, though classic spinach is more cold-hardy than Asian spinach. Of all the varieties we've grown, 'Giant Winter' is the hardiest of all, easily overwintering uncovered in our gardens here in Zone 5. Hoops and floating row cover help all varieties thrive deeper into the cold weather and cold frames are another simple way to extend your spinach harvest in both spring and fall. Mulching is another way to reduce frost-heaving and winter windburn, making your spring harvests that much more abundant.

## 🌿 HARVEST 🌿

**Classic spinach:**

**Microgreens:** The relatively slow germination & narrow cotyledons make classic spinach disappointing as microgreens.

**Baby Greens:** 20 days from seeding

**Full-size Leaves:** 45 days from seeding

**Asian spinach:**

**Microgreens:** 8 days from seeding

**Baby Greens:** 20 days from seeding

**Full-size Leaves:** 45 days from seeding

For both spinach types, harvest by hand or by cutting as soon as leaves look delicious! Whole plants may be harvested or single leaves, as desired. Whether you're harvesting baby or full-size spinach leaves, harvest the larger, outermost leaves so the small, young leaves at the center regrow to surround you with even more abundance. In the heat of summer, spinach 'bolts,' sending up a seed stalk, becoming much less delectable. Look for leaves turning from glossy to dull and also decreasing in total size as indicators that bolting is imminent, promptly harvesting the entire plant as soon as you notice these shifts. Also, resist harvesting in the heat of summer! Harvested in the cool of early morning, there is more water and sugars in the leaves, helping them remain succulent. To optimize the storage life of your spinach, harvest in early morning and plunge into a cool water bath before spinning dry and putting them in the fridge.

## SEED SAVING

### Classic spinach:

**Life Cycle:** Annual

Classic spinach is day-length sensitive, flowering when the days are between 13 and 15 hours of light. Additionally, pollination and seed set are temperature sensitive; less than 75°F is optimal. This specificity is why 92% of the world's spinach seed is produced in very particular regions of the Pacific Northwest.

**Self or Cross-Pollinated:** Spinach is dioecious, meaning each plant is separately male or female, necessitating cross-pollination. Wind-pollinated, spinach will cross up to 1 mile.

**Qualities to Select for:** Flavor, leaf shape and texture, cold-hardiness, color, plant architecture, resistance to bolting.

**Wet or Dry Seeded:** Dry

**When to Harvest:** Seeds on female plants are mature when they have turned from green to tan. Harvest when two thirds of the seeds on a given plant are mature. For us here in Zone 5, this is often mid to late June with our overwintered spinach.

**Seed Cleaning Notes:** On a very dry day, strip the seeds from the bottom up, allowing them to fall into a bucket or tarp. Let dry further before using screens and fans to separate chaff.

**Seed Storage & Viability:** If stored in optimum conditions, spinach seeds hold their germination up to 6 years. Enjoy our *Secrets of Seed Storage* blog for more tips.



*As spinach (like this red-veined Beaujolais) bolts, trellising helps increase seed quality and quantity. Can you tell which plants are male and which are female?*



*Tatsoi, Asian Spinach, does not need trellising and is much easier to save seed of here in the Northeast. Your resident pollinators will be delighted you're saving seed!*

### Asian spinach:

**Life Cycle:** Weak biennial

Sow inside in March to set out in April to ensure vernalization and eat only a few leaves, if any. Stake plants as they flower to keep flower stalks from falling over.

**Self or Cross-Pollinated:** Cross-pollinated, most commonly insect-pollinated up to 1 mile. Note other plants in the same species that may also be flowering like Chinese cabbage, turnips and other Asian greens.

**Qualities to Select for:** Flavor, leaf shape and texture, cold-hardiness, color, plant architecture, resistance to bolting.

**Wet or Dry Seeded:** Dry

**When to Harvest:** Each green seed pod turns gold as its seeds mature. Seed pods also mature on each stalk from the bottom up. On a warm, dry day harvest the lowest pods first individually, just before they shatter or harvest the entire stalk when most are ripe and the first have just begun to shatter.

**Seed Cleaning Notes:** Use screens and fans to separate chaff.

**Seed Storage & Viability:** If stored in optimum conditions, spinach seeds hold their germination up to 6 years. Enjoy our *Secrets of Seed Storage* blog for more tips.

## BEST OF THE BLOG

8 Seeds to Direct Sow in the Cold  
Ideal Varieties for Container Gardening  
& Raised Beds

10 Easy Seeds to Sow in May  
Successful Succession Sowing in July  
Sowing Autumn Abundance in August  
Seeds to Sow in September

Enjoy our **Sowing & Growing Webinar on Spinach**  
online as well as in our **Seed Starting Academy**  
for step-by-step video tutorials  
to surround you with abundance.

Insight & inspiration daily!



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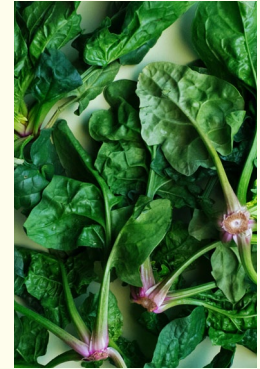


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**Our favorite recipes:** *Anything with spinach in it! Sincerely, we love spinach both raw and cooked in a thousand ways.*

### Preserving the harvest:

*We mostly focus on growing spinach to harvest throughout the winter, so we rarely 'put up' spinach for seasons ahead. We occasionally do have an abundance of spinach bolting at once and then we make a rich, velvety spinach saag for the freezer.*



## OUR VARIETIES:



### ORGANIC BUTTERFLAY

We just love the melt-in-your-mouth deep green leaves of Butterflay spinach, full of deep mineral succulence at any stage from baby leaf to full-size leaves. All spinach grows best in cool temperatures but Butterflay

is exceptional, easily surviving uncovered in our gardens each winter.



### ORGANIC TATSOI | ASIAN SPINACH

HEIRLOOM If you love spinach and have ever struggled to grow it, Asian spinach just might change your life as it did ours. Asian spinach is so similar to spinach in both mild mineral flavor and buttery-crisp texture

and Friends, she is SO much easier to grow. Her green spoon-shaped leaves and succulent stems we use exactly the same, fresh and cooked, as we do classic spinach. We also love tatsoi as microgreens all winter!



### ORGANIC GIANT WINTER

HEIRLOOM Exceptionally cold-tolerant with smooth, melt-in-your-mouth leaves, we savor Organic Giant Winter Spinach from early fall all the way to late spring. Her leaves at any size are rich and deliciously succulent, all the more so with any cold Giant Winter experiences. All spinach grows best in cool temperatures and Giant Winter is truly the best we've found, easily surviving uncovered in our gardens each winter. Growing spinach under hoops and floating row cover will help you harvest all the more!



### ORGANIC BEAUJOLAIS

With brilliant burgundy stems & incredible, sweet succulence, Beaujolais quickly became one of our favorite vegetables to eat. All spinach grows best in cool temperatures and Beaujolais is no exception.

Though it tends to bolt quicker than classic green spinach, leaves are still tender when they are over a foot long before they finally send their seed stalk high. We are grateful for our friends at Uprising Seeds for developing this extraordinary variety and sharing it with us.

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