



Growing Peas in the Home Garden

Orin Martin, manager of the Center's Alan Chadwick Garden, offers cultivation tips and a look at some of the many pea varieties available for the home garden.

Garden or English peas (*Pisum sativum*) are hardy, cool season, vining annuals grown for their fresh immature green seeds and pods. Peas are classified in the Fabaceae (formerly Leguminosae) family, which consists of approximately seven hundred genera and seventeen thousand species, with cosmopolitan distribution throughout the temperate, subtropical, and tropical zones of the world. Many species in this family are used as food, forage, timber, and dye plants.

Peas are thought to have originated on the eastern rim of the Mediterranean into the mideast. Remains of 7,000-year-old carbonized seeds have been found in Switzerland. By the height of the Greek and Roman civilizations, peas (and legumes in general) were well established garden, field, and green manure crops.

Although peas are not heavy yielders (in terms of pounds per area), they are well worth the effort in small gardens. A fresh garden pea's taste is so far superior to its store-bought equivalent that it is in fact a different vegetable—sugar vs. starch, fresh and lively vs. dull and soggy.

Along with spinach, peas usually herald the first working of the soil and planting in spring. If all goes well, sweetness and succulence await you 50 to 70 days after planting seeds. Because they need to be trellised, peas afford excellent opportunities for intercropping (see sidebar, next page).

Once established, peas don't require much work. They are able to grab onto the trellis and spread themselves out for greater exposed photosynthetic area and better air circulation to reduce the incidence of mildew. They are not very sensitive to weed pressure. In fact, weeding established pea patches can do more harm than good, as peas have numerous surface roots that are sensitive to disturbance.

GROWING HINTS

Cultivation. All peas are emphatically cool season crops. Optimally, they are direct sown when the soil temperature averages over 50° F. Sixty to eighty days of temperatures below 80° F are requisite for good production. Soil temperatures of 55°–75° F will yield germinating seedlings in 7–10 days. Overly wet and cold (below 50° F) or wet and warm (over 75° F) soil increases the percentage of pre-emergent rot. In fact, because pea seeds are large and can imbibe and

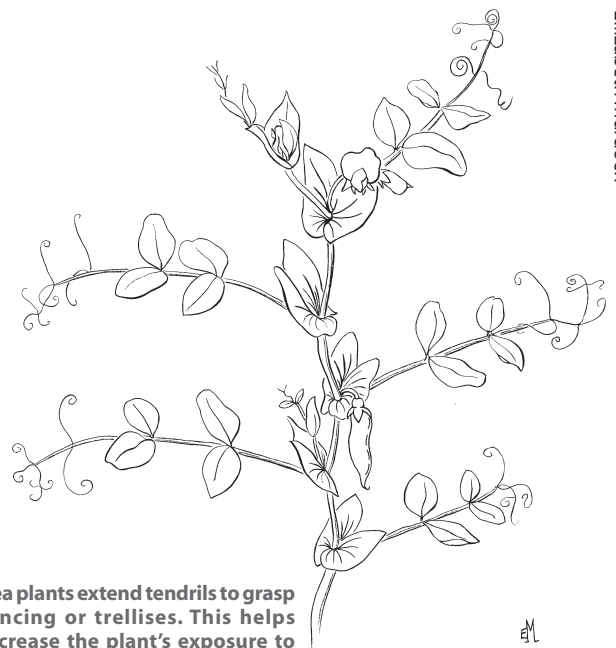
hold so much water, allowing the soil to dry down significantly between waterings will reduce rot and ensure good germination.

Soils. Good drainage is essential for vigorous growth. Early cropping favors sandy soils as they drain and warm more quickly than clays.

Peas, as do most legumes, prefer a slightly acid (6.8) to slightly alkaline (7.2) soil pH. This higher pH range also provides for the high calcium needs of peas. Peas are intolerant of acid soils.

Planting. Peas should be direct seeded or gently transplanted from speedling/plug trays. Seeds can either be drilled in rows or broadcast sown. Drills can be single or double rows 2–4 inches from the trellis to facilitate the tendrils (modified leaves) finding the fence.

Seeds should be sown heavily (12–15 per foot), as pea seeds generally have a moderate germination percentage (60%–80%) even under ideal conditions. Thin to 8–12 seeds per foot if necessary. The general adage about covering seed two to three times its narrowest diameter applies here; seeds should be planted 1–1 1/2 inches deep, then gently tamped or watered in.



Elizabeth Murdoch

Pea plants extend tendrils to grasp fencing or trellises. This helps increase the plant's exposure to sunlight.

Side Cropping

With a single or double row of peas on a trellis in the center of a 48-50-inch-wide raised bed, a crop (or two) of quick-maturing plants can be grown along the bed edges (side cropped) for more efficient use of space. These include —

Crop	Planting method	Days to harvest
baby spinach	direct sown	20-30 days
mature spinach	direct sown	40-50 days
cutting lettuces	transplanted	20-30 day
mature leaf or mini romaine lettuce	transplanted	40-50 days
butter lettuce	transplanted	50-60 days
arugula	direct sown	20-30 days
direct-seeded radishes	direct sown	30-40 days

Pea seeds can also be thickly broadcast at 2–3 seeds per square inch, and raked in or covered with soil. Twiggy brush (see below) or one to two layers of horizontal netting creates the trellis for support. This broadcast method nets a higher yield per area but can increase incidence of powdery mildew due to restricted air circulation.

Note that pea seed viability is relatively short (3–4 years) under ideal circumstances. In most home garden situations seed will only last 1–3 years. When ordering pea seeds, think in 1/2 and 1 pound increments (1,500–2,000 seeds per pound). Varietal selection is important as to plant height and time to maturation, but most importantly, pay attention to disease resistance. Basically, if a varietal description doesn't tout or mention disease resistance, be a smart shopper and realize it probably has none. The more recent the varietal introduction, the more disease resistant it is. Unfortunately, the converse is true as regards heirloom varieties. (See page 4 for varietal descriptions.)

Nutrients. Because legumes are capable of fixing nitrogen via association with soil bacteria, garden peas are mistakenly thought to need little or no supplemental nitrogen. The truth is that they fix very little nitrogen unless inoculated with the appropriate species of bacterium (see *Inoculation*, below). They will also use most of the nitrogen they fix and thus don't particularly enrich the soil for the following crop. Phosphorous is an important nutrient for early root development and to assist with flowering, fruiting and sugar development. Fortunately legumes are efficient at gathering and concentrating phosphorous.

Fertilizing the peas prior to planting is optional on enriched or improved soils. A compost of chicken manure, mixed greens, and straw or leaves will boost nitrogen and phosphorous levels. Composts of brassicas and legumes will concentrate phosphorous and calcium.

Inoculation. Pea plant vigor and thus production is markedly increased when the seed is inoculated with the appropriate species of *Rhizobium* bacteria (see sidebar). These bacteria can be purchased in a powdered carrying agent (usually talc) from most seed catalogues and nurseries. To inoculate, simply dampen the seed, add powdered inoculate and mix until the seeds have a blackened, peppered look. Plant as soon as possible as the water activates the bacterial population and desiccation is harmful.

Watering. Peas require 1–2 inches of water per week. They are intolerant of water stress (i.e., too little water); stress will reduce plant size, decrease yield quality—resulting in tough, starchy peas—and severely shorten the length of cropping. Flowering and early fruit set are key times to ensure an even flow of water. While peas have a tap root that can penetrate up to 3 feet, most of the effective feeding roots range from just under the surface to 12–15 inches deep.

Once peas are established, and especially as they begin fruiting, they are subject to a fungal disease called powdery mildew. Overhead watering in conjunction with high humidity will bring on the disease. To help avoid the problem, either water overhead in the morning prior to a sunny stretch of weather so that the plants will dry out, or use drip tape or soaker hose around the base of the plants.

Trellis or Fencing. All but the shortest varieties of peas need some sort of support. Although many varieties are advertised as self-supporting (especially the “leafless” types), this is not true. Fencing allows closer plant spacing (1–2 inches between plants to 2 plants per inch), because the plants can spread out on the trellis or fence. Fencing also increases sunlight interception, minimizes disease, and facilitates easier picking.

One age-old tradition for trellising peas is what the British refer to as “twiggy brush.” The branched prunings of last year's growth from fruit trees inserted into the soil make an excellent, cheap, and somewhat artistic fence. The brush is usually good for two to three years. One- and two-inch chicken wire will also suffice. Unlike beans, peas aren't a heavy plant or fruit, thus they don't need as strong a fence. In fact, garden twine run vertically or woven between horizon-

Rhizobium Bacteria

One of the remarkable features of most legumes is their ability to host symbiotic soil bacteria on root nodules. This association allows the bacteria to take nitrogen gas from air in the soil and convert or “fix” it chemically into a form available to plants. The bacteria residing in the legume root nodules are called Rhizobia (*Rhizobium* spp.). Each species of legume hosts a specific species of the *Rhizobium*; that is, the species that associate with clovers won't inoculate peas and visa versa. You can significantly increase the vigor and yield of pea plants by inoculating the seeds with the appropriate *Rhizobium* prior to planting.

tal 2x4s makes a biodegradable/compostable trellis. String on a wooden A-frame also works. The important thing is to install the trellis prior to planting and to rotate it around the garden so as not to be tempted to repeat the crop in the same bed before two to three years have passed.

Crop Establishment. Unless peas are ridiculously over-sown, thinning is unnecessary. Spacing plants farther than 3–4 inches apart makes no sense, nor increases yield per foot. One weeding at the 3-inch stage usually keeps the peas ahead of the weeds. Because peas are so succulent, the less the crop is handled the less the physical damage. Even micro-breaks in the foliage can lead to an “invasion” of powdery mildew.

Mulch. Mulching helps protect the surface roots from heat and desiccation, thus prolonging cropping as summer approaches.

Harvesting. Peas must be picked every 2–4 days to ensure quality and continued production. This is usually not a problem on a garden scale. To avoid harming the plants as you pick, hold the stem in one hand and pinch the pod off the vine just behind the calyx with the other hand.

BUSH VS. CLIMBERS

Peas, as well as beans and tomatoes, come in two forms: bush (determinate) and climbers (indeterminate). As with beans, originally all peas were rampant climbers. Dwarf or bush varieties are a result of breeding efforts that have selected for quicker maturation and easier care and labor (fencing and picking). Each type has its pros and cons –

Bush types

- Mature quickly, 50–60 days (40 days for some early varieties)
- Concentrated cropping period, 1–3 weeks
- Less effort and materials for fencing or trellising
- Increasingly greater varietal possibilities
- Require bending and stooping to harvest, especially on dwarf early varieties
- Lower overall yield
- Higher pod to vine ratio

Climbers

- Slower maturing, 60–75 days
- Extended cropping period, 3–5 weeks
- Require extensive trellising
- Almost vanishing varietal possibilities
- Picker can stand tall and straight to harvest
- Significantly higher overall yield
- Lower pod to vine ratio

Note: All peas need to be kept picked to prolong production. As few as 2–3 pods left to mature will shut down

further pod production, as the plant shunts a lion’s share of its energy into ripening seed.

THE THREE TYPES OF PEAS

Shelling Peas (*Pisum sativum*)

Shelling peas and *petit pois* come in single, double and multiple podded varieties. Multiple-podded varieties “throw” two or more pods at each node and are thus more productive. Usually, the more modern the variety, the greater the productivity.

Shelling peas must be picked after the 8–10 individual peas have sized up but before their sugar has turned to starch (every 2–4 days). A properly mature, but not overripe, pea pod should be mid-dark green, shiny, and fully round and plump. And of course, they must be shelled or shucked because of the starchy nature of the pods, which requires lots of labor. If well grown and picked with proper timing, they are moist and sweet with a low starch content and can be, and often are, eaten while picking in the garden.

If they do make it into the house, shelled peas can be added raw to salads, lightly steamed (2–3 minutes), or added with leafy greens at the very end of a stir fry dish. As with corn, the sugars in peas start to convert to starch within minutes of picking. Thus quick usage or cooling and chilling to lower the core temperature is essential. This is one instance where living hand to mouth amounts to high living.

Shelling pea plants can be divided into 3 heights:

- short (and quickest maturing) varieties under 2 feet tall; mature in 40–50 days
- intermediate varieties 2–4 feet tall; mature in 50–65 days
- climbing types (often called telephone pole) 5–8 feet tall; mature in 60–75 days

Unlike garden beans, where the bush varieties are a disappointing step down in eating quality from their climbing counterparts, bush peas feature as good as and in some cases better taste than climbers.

Petit pois are shelling peas of diminutive stature. The plants are smaller—18 inches to 2 1/2 feet. The leaves, pods and peas inside are smaller. However, the succulence, intensity of sweetness, and productivity per plant dwarf standard shelling peas.

Snow Peas (*Pisum sativum* var. *macrocarpon*)

Snow peas or Chinese snow peas differ from shelling peas in that the pod is harvested early when it is still flat and before it starts to twist. With the notable exception of the variety Oregon Giant, the peas (actually ovules inside the ovary) are starchy and unpalatable. Although initially disappointed when I grew snow peas, I’ve come to regard them as my favorite type of pea. With such an exotic name as snow pea I expected sweetness and snowmelt succulence. Alas, snow peas are all about crop texture and moderate juiciness. Still, they are “de rigeur” in Asian stir fry dishes.

One dilemma regarding snow peas is that varieties tend to be either productive or tasty but not both. (See varietal descriptions for solutions.)

Sugar Snap Peas (*Pisum sativum* var. *saccharatum*)

The edible pod or “eat the whole thing” pea is both the most significant vegetable development in our gardening lifetimes (pre genetic engineering) and a somewhat over-rated item. Originally developed by Dr. Calvin Lamborn of the Gallatin Seed Co. in Idaho, it was a breeding mistake. He was attempting to solve the production problem of twisting snow peas by crossing a heavy-podded shelling pea with a snow pea and voilà—the sugar snap pea.

Sugar snaps feature thick, round pod walls that tightly enclose the peas. The walls themselves are sweet and juicy. The peas are versatile in that they can be used young as an ersatz snow pea, at the proper stage (best flavor results when pods are plump, round and

have an audible snap) as a sugar snap, or even as a shelling pea when overmature. The allure of the sugar snap is that it produces more nutrition and taste per plant or area than any other type of pea. It also allows you to eat a shell-type pea with no shelling and is far sweeter than any other type of pea. So, what are the drawbacks?

- The original sugar snap variety is a 6–10 foot-tall plant with poor vine/fruit ratio. Subsequent breeding has developed dwarf varieties that are only moderately productive.
- The original sugar snap and most of its dwarf offspring have little or no resistance to powdery mildew, and the dwarf types have only average taste and texture.
- The pods have a pronounced “string” that needs to be removed before eating or cooking.

While they are amazing, my feeling about sugar snaps is similar to my thoughts on wind surfing—if I wanted to surf I’d surf, if I wanted to sail I’d sail.

VARIETAL DESCRIPTIONS

Shelling Pea Varieties

Bush Varieties (in order of days to maturation)

These need less fencing, crop early, and have a short, concentrated harvest period—

Dakota (52 days) About the earliest-producing pea. Good productivity on 20”–24” vines bearing 4”-long pods with

6–7 peas per pod. A good bet where cool spring weather turns quickly to summer heat. Disease resistant.

Spring (52 days) Dark-podded, early, smallish, 3”-long pods, with 6–7 peas per pod. Good for fresh eating and freezing.

Maestro (55 days) Vigorous 24”–30” vines, high yield, long cropping period. Peas fill out or enlarge late in long, double pods.

Knight (56 days) 2’-high plants produce single and double 3”–4”-long pods with 7–8 flavorful peas per pod. Old-fashioned, heavy pea flavor; peas are the largest for an early variety. Extremely disease resistant, especially to powdery mildew.

New Century (58 days) A significant new variety. 30”–36”-tall, vigorous vines bear extra-large 6”–7”-long pods with 8–9 peas per pod. Peas are 1/4” wide. Very concentrated harvest period; successive plantings recommended.

Lincoln (60 days) Classic heirloom (1908) with 30” vines, limited disease resistance. Easy to shell, good heat tolerance, and a

great old-timey flavor.

Green Arrow (65 days) Classic long-podded (5”–6”) variety with 8–10 big peas per pod on 24”–30” vines. Good flavor, heavy yields.

Wando (65 days) Older variety with little or no disease resistance, but best heat tolerance. Vines grow to 36”, bearing 3 1/2”-long pods.

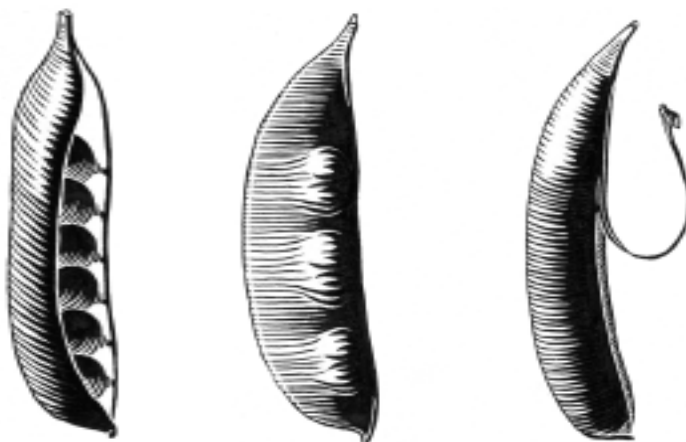
Novella II (65 days) Best of the leafless varieties. Bred to have more tendrils for effective self support and less foliage. Good for cool, moist areas, and allows closer plant spacing because of less foliage. 24”–30” vines bear small 3”-long pods with 6–7 peas/pod. Very disease resistant. Pods held above foliage for easy picking.

Climbing Varieties

Maxigolt (60 days) Vigorous bush or moderate climber. Heat tolerant, 4 1/2’–5’-tall vines. A versatile spring or fall performer. Unarguably the biggest (6” long), plumpest, sweetest, heaviest-cropping pea I’ve ever grown.

Alderman’s Telephone Pole (75 days) Produces thick, huge, 6”–8”-long pods on 6’–8’-tall vines that need a strong trellis. Pods are easy to pick and shell. Long harvest period. Old heirloom variety with high flavor when cooked

Utrillo (75–80 days) 5’-7’ tall, best sown late summer for late fall harvest. Big peas, 5”-6”-long pods. Top yields, very sweet peas.



Left to right: Shelling Pea, Snow Pea, and Snap Pea

Jennifer Kane

Petit Pois

Precoville (60 days) Small vine (15"–20"), small, 2"-long pods. Good flavor when eaten raw, good texture.

Waverex (70 days) Heavy yields of 3"-long pods with 6–7 peas/pod on 15"–20" vines. Intensely sweet.

SNOW PEA VARIETIES**Bush Varieties**

Oregon Giant (60 days) A recent introduction from Dr. James Baggett of Oregon State University combines extreme disease resistance with the biggest (5"–7" x 1"), heaviest pods and sweetest flavor of any snow pea. This variety can even be picked late when pods are starting to twist and "berries" are pronounced in the pods. In fact full flavor is achieved at this stage. Long harvest period. Vigorous 3 1/2'–4 1/2' vines. The best snow pea ever (for now)!

Oregon Sugar Pod II (62 days) Another Dr. J. Baggett introduction. Similar to Oregon Giant, but just a notch below in size, flavor, productivity, etc. Excellent choice.

Dwarf Grey Sugar (60 days) Introduced in 1892. 30"–36" vines. Red blossoms, red blush to foliage. Small pod (2" long), light flavor, stringless, good at immature stage.

Ho Lan Dow (60 days) First snow pea I ever grew (25 years ago) and still reliable. Moderate 24"–36" vine, high productivity, small sweet pods (2 1/2"–3" long). Low disease resistance.

Norli (60 days) Tall vines (4'–5') bear small 2 1/2"–3"-long pods. Moderate flavor, good pod presentation makes picking easy.

Snow Green (59 days) Good disease resistance. 24" vines. Moderate production and pod size (2 1/2"–3" long). Must be picked early or gets tough.

Climbing Varieties

Mammoth Melting (75 days) Classic heirloom variety. The 6'–8'-tall vines bear 3 1/2"–4"-long pods. Low disease resistance. Poor vine/pod ratio but superior taste if picked when pods are flat.

Carouby de Maussawe (75 days) French heirloom with vigorous 6'–8' tall vines. Super sweet taste, even raw. Purple flowers. Makes an attractive annual hedge or screen.

SUGAR SNAP PEA VARIETIES**Climbing Varieties** (*actually there is only one*)

Sugar Snap (75 days) The original and best tasting of all sugar snaps. On the downside, tall vines are hard to pick, plants are very prone to mildew, and the pods have a serious string.

Bush Varieties

Sugar Ann (55 days) Earliest sugar snap. Small pods 2"–2 1/2" long. Sweet flavor. Short vines (2').

Super Sugar Mel (60 days) The most vigorous, highest yielding, biggest, heaviest podded, sweetest tasting of the

bush sugar snaps. 36"–40" vines. Best picked when pods are fully enlarged. Good heat and disease tolerance.

Sugar Lace (60 days) A new introduction. Short (24") vines bear virtually stringless pods that are plump and sweet. Vines are "leafless" and thus have an abundance of tendrils to aid in self-support and higher density planting. Large pods are 3 1/2"–4" long.

Sugar Sprint (60 days) Sweet, virtually stringless pods. The 3"-long pods plump up quickly. Compact 2' vines are disease resistant.

Cascadia (60 days) Short (28"–30") vines bear 3 1/2"-long pods with high yield, sweet taste, string. Disease resistant. Superb eating quality.

Mega (75 days) Latest-maturing variety. Good in both hot and cool conditions. Large (mega) 4"-long pods with crisp, juicy, sweet flavor similar to Sugar Daddy.

– ORIN MARTIN

REFERENCES

The Book of Garden Secrets: A Guide to Understanding How Your Garden Grows and How You Can Help It Grow Even Better, by Dorothy Hinshaw Patent and Diane E. Bilderback. Rodale Press, 1982.

World Vegetables: Principles, Production, and Nutritive Values, by Mas Yamaguchi. Van Nostrand Reinhold, 1983.

SEED SOURCES

Johnny's Selected Seeds
955 Benton Ave.
Winslow, ME 04901
877.564-6697
www.johnnyseeds.com

Renee's Garden
Available at nursery and garden centers; call toll-free 888. 880-7228 to locate a retailer nearby, or purchase on-line: www.reneesgarden.com

Stokes Seed Co.
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Buffalo, NY 14240-0548
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www.stokeseeds.com

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