

Growing Guide: Edamame/Soybeans

Unlike the pinto beans in your burrito, kidney beans in your chili, or garbanzo beans in your soup, soybeans rarely make it to the dinner table in their full bean form. Instead, they're usually transformed, or they're a hidden ingredient: soymilk, soy sauce, tofu, soy margarine. The exception is the now trendy snack food: edamame.

Edamame: Nutritious, Delicious, and Fun to Eat!

Edamame (ed-uh-MAH-may) are soybeans that are harvested when beans have plumped up enough to create lumps in the fuzzy pods, but the beans are still soft and green. Lightly steamed and salted, the glistening, apple-green beans easily pop out from the pods, ready to enjoy as they are or added to stir-fries or salads.

Steamed edamame appetizers used to be found only in Chinese, Japanese, and other high-end or trendy restaurants. Now you'll find them on menus everywhere! You'll be served a bowl of salted pods. The pods themselves are inedible. To extract the edible beans, press the fuzzy, salty pod to your lips and squeeze or bite the pod to pop the seeds into your mouth — the pod salts your lips and brings out the flavor of the beans. Savor the tender-chewy seeds, toss the empty pod in a separate bowl, and grab another to enjoy.

Soybeans: Edible, With Some Effort

Soybeans (*Glycine max*), are nutritional powerhouses, higher in protein and lower in carbohydrates than most of their legume cousins. Soybeans pack about 38% protein and 18% oil, and they contain iron, B vitamins, calcium, zinc, and fiber as well.

Why don't we find whole, cooked soybeans in our soups and chilis? Even after lengthy cooking, the mature beans can remain quite tough. In fact they're considered largely indigestible. Soybeans also contain a substance called trypsin inhibitor that impedes digestion of the mature bean.

This challenge to digestion explains the remarkable number of foods derived from soybeans, all of which are more easily digested, including soymilk, tofu, tempeh, tamari, and miso. The latter three involve fermentation, a process that deactivates the trypsin inhibitor. Fortunately, the young, green edamame beans contain less of the inhibitor, so they're more easily digested.



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Soybeans Feed the Soil

Like the roots of all legumes, soybean roots are colonized by a type of soil bacteria called rhizobia that form a mutually beneficial association. These bacteria create and inhabit nodules on the roots. In return for extracting some carbohydrates from the plant roots for use as fuel, the rhizobia “fix” nitrogen from the air and transform it into a chemical form that is available as a nutrient to the plant.

For thousands of years, farmers and gardeners have planted soybeans as a crop, not to eat, but to improve their soils. They sowed the seeds and allowed the plants to grow, and then plowed them back into the soil. This not only added organic matter, it also made the nitrogen that had been “fixed” by the plants available for the next crop. This type of crop rotation has been done for millennia. It minimizes or even eliminates the need for applying supplemental nitrogen fertilizers. Learn how to grow soybeans as a cover crop below.

Fun Facts

- Soybeans yield more protein per acre than milk, eggs, meat, or other common crops.
- During the Zhou Dynasty (1050 - 256 BC) in China, soybeans were designated one of the Five Sacred Grains, along with wheat, barley, rice, and millet.
- Soybeans are used in many non-food applications, such as in manufacturing adhesives, inks, solvents, candles, paint, varnishes, plastics, and crayons.
- By far, most soybeans in the U.S. are processed for their oil and as protein-rich feed for livestock.
- Soybeans were introduced to Europe in the 1600s. In the U.S., little attention was given to the crop until the beans’ high oil content became a focus.
- Today, soybeans are the largest cash crop in the U.S.

How to Grow Edamame

1. Look for varieties described for eating as edamame. (If planting a cover crop, look for this in the description.) Although many of the varieties can be used for both purposes, you’ll get better results with a recommended variety.
2. Select a site in full sun with well-drained soil.
3. Wait to plant until all danger of frost is past and the soil has dried out and warmed up (at least 55 degrees F.) Loosen the soil, but don’t overwork it with repeated tilling.
4. Plant seeds about an inch deep and 6” apart, and then plan to thin plants to about 12” apart. The plants grow into an upright shrub about 2’ to 3’ tall. Because the pods will all mature at around the same time, if you want a longer harvest, stagger your planting times a few weeks apart.
5. Once plants are heavily laden with pods they’re prone to flopping. Support plants by driving a stake at the end of each row and running twine along both sides of the plants.

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6. Although the plants are rarely bothered by insect pests, you may still want to cover them with row fabric to keep out any hungry Mexican bean beetles, aphids, and stinkbugs. Soybeans are self-pollinated, so you don't need to remove the covers to allow pollinators access to the flowers.
7. The bigger pest problems are, well, bigger pests: rabbits, deer, groundhogs. You'll need a sturdy barrier to keep them away.
8. Start harvesting when the beans are plump and beginning to fill out the pod. For best flavor, eat the beans as soon as possible after harvest. Don't be tempted to eat them raw — steam or boil them lightly first.

How to Grow a Soybean Cover Crop

Note that because soybeans are a warm-season crop, you'll need to allow that planting area to remain unplanted for the summer season.

1. Wait to plant until all danger of frost is past and the soil has dried out and warmed up (at least 55 degrees F.) Plant seeds at a rate of 2 to 3 lbs. per 1000 square feet.
2. Allow the plants to grow until about 50% of the plants have begun to produce flowers.
3. Cut down the plants. If possible, chop them into pieces, and then gently incorporate them into the top few inches of soil.
4. Wait at least four weeks before planting anything in that area so the plant material has time to decompose, because some plant nutrients in the soil will be tied up during the decomposition process.
5. Another option is to leave the soybean plant material laying on the soil surface, where it will protect soil from harsh rain and wind and help deter weeds.

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