



Growing Legumes for Seed Saving

Tasty, nutritious peas and beans, or *legumes*, are some of the easiest vegetables to grow and save seeds from. Some varieties are vines that can grow to 4 m. Other varieties stay compact and bushy. Edible legumes are annuals, meaning they grow and reproduce in one year.

Legume seeds are enclosed in pods that are actually the fruit of the plant. The pods of snap bean and peas are eaten after they are cooked, although some varieties of snap peas can be eaten raw when the pods are young. Then there are beans and peas with tough pods, from which the green seeds are extracted. Other types of legumes are grown solely for their dry seeds; these are called *pulses*.



Maxibel bush bean.

Many species of legume are self-pollinating and therefore varieties can be grown quite close to each other. Even so, for seed saving, gardeners need to know the species name of the plant they are growing, to make sure they don't cross-pollinate with other varieties of the same species in the garden.

For example, varieties of common bean, like Fortex, will cross-pollinate with other bean varieties, like Tiger Eye, because they are the same species. But common beans will not cross-pollinate with tepary beans or lima beans because they are all different species. Nor will any variety of garden pea cross-pollinate with chickpea. Cross-pollination would result in seeds that produce hybrid plants when grown out.

Types and Characteristics of Edible Legumes

Common name of species	Species name	How used	Growth Habit	cool or warm season	Planting to harvest, days	isolation distance, metres
Adzuki Bean	<i>Vigna angularis</i>	Shelling, dry	Climbing	Warm	85-100	6
Common Bean	<i>Phaseolus vulgaris</i>	Snap, dry, shelling	Pole, bush	Warm	50-65	6
Fava (Broad) Bean	<i>Vicia faba</i>	Snap, shelling	Bush	Cool	70-80	200
Garbanzo or Chickpea	<i>Cicer arietinum</i>	Dry	Bush	Cool	95-110	6
Garden pea	<i>Pisum sativum</i>	Shelling, snap, dry	Climbing, Bush	Cool	65-80	3
Lentil	<i>Lens culinaris</i>	Dry	Bush	Cool	80-110	6
Lima or Butter Bean	<i>Phaseolus lunatus</i>	Shelling, dry	Climbing, Bush	Warm	60-90	200
Scarlet Runner Bean	<i>Phaseolus coccineus</i>	Snap, dry	Climbing	Cool	70-80	200
Soybean	<i>Glycine max</i>	Dry, shelling	Bush	Warm	90-120	6
Tepary Bean	<i>Phaseolus acutifolius</i>	Dry	Climbing, Bush	Warm	75-90	6

Preparing the Garden

To do well, legumes, like all vegetables, should be rotated in the garden on a 3 to 5-year cycle. This lowers the risk of pests and diseases and helps balance nutrients. Make sure the garden site has good drainage. Remove any weeds and dig or rototill the bed. You should not dig very wet or very dry soil, as this can harm the soil structure.

Legumes fix nitrogen, which means bacteria in their root structure convert nitrogen in the air to a form that the plants can use for growth. They don't need fertilizers with high nitrogen, but they

do need phosphorus, potassium, and micronutrients. Compost, bone meal, rock phosphate, and wood ash provide these elements, often found in commercial organic fertilizer.

Tall varieties like pole beans and climbing peas should have supporting structures like towers, poles, or trellises to keep the plants and pods off of the ground. Set them up before you plant. Peas and beans can be grown in large containers, although production is lower.

Planting

Most legume seeds can be planted directly in the ground, but some types need a long growing season. You can start plants of species like adzuki bean indoors in peat pots in late April and then transplant them into the garden in late May or early June. Even shorter season types like chickpeas seem to do better when started indoors.

Cool-season legumes like garden peas should be planted in mid-April or when the soil temperature reaches 10°C. Seeds of these may rot before they can germinate if planted in cold, wet soil. Good weather earlier in the season might tempt gardeners to plant in March, but these crops are harvested no earlier than if they were planted a couple of weeks later.

- Plant pea seeds 5 cm (2") apart in the row and about 2 cm (1") deep, and chickpeas 15 cm (6") apart and 5 cm deep. Separate rows by 0.5 m (20").
- Many vegetables, such as spinach, corn, and potatoes, are good companion plants but don't plant legumes near onions.
- Keep the soil moist until seedlings appear, then water the plants regularly.

Beans are warm-season vegetables. They should not be planted before the soil temperature reaches 16°C, usually toward the end of May.

- Plant bush bean seeds 10-15 cm (4-6") apart in the row and about 5 cm (2") deep. Separate rows by 1 m (3 ft).
- Pole beans can be planted below a trellis, or tepee made of 3 m poles. Space the seeds 15 cm (6") apart and 5 cm (2") deep.
- Most vegetables are good companion plants except those in the onion family.
- Keep the soil moist until seedlings appear, then water the plants regularly.

If you are growing several varieties of legumes, make sure to label the plants in the garden or container and also make a map on paper of where each variety is located. Make a note of when you planted each variety.

Diseases

Legumes can be affected by bacterial, viral, and fungal pathogens. Many of the organisms that cause these blights, lesions, and molds thrive in humid conditions. If possible, irrigate below the foliage and space the plants so air can circulate through them. Keep your garden free of weeds and debris. Rotate crops every year – many of these organisms live in soil.

Pests

Beans and peas can attract insect pests like aphids, wireworms, and cutworms. Use organic pesticides if the infestation is large. Slugs can also devastate legume seedlings. Non-toxic products like slug bait will deal with them effectively.

The most serious pest of peas here in the Creston valley is pea weevil (*Bruchus pisorum*). Adult pea weevils are tiny dark-coloured beetles flecked with lighter patches. They overwinter in soils and vegetation left in the garden. They become active when peas are blooming. Females lay eggs on developing pods. The eggs hatch, and the larvae burrow into peas within the pod. Only one larva develops per pea. Eventually an adult weevil emerges from the pea, leaving a round hole. This emergence can occur as late as December of the year the peas are harvested.



Pea weevil holes are distinctive.

Cultural controls that help reduce weevil damage include:

- Planting very early in spring before most adult weevils are active, or in early summer after the weevil's life cycle is over.
- Removing dead vegetation and weeds in and near garden beds in the fall.
- Covering the plants with floating row cover when they are in bloom.
- Planting peas as far away as possible from where peas were planted the previous year.
- Removing seed plants or pods as carefully as possible so that peas don't fall into the garden bed (these peas could harbor adult weevils).

- In the spring, burying the pea seeds and adult weevils by deeply digging garden beds that had peas the previous year.
- Planting peas only every other year.

Other than commercial toxic pesticides, there are few options except the cultural controls above to deal with this pest. You could use dry rotenone dust on the plants when they start to bloom, but before pods form. This should be done weekly, as more flowers open.

Use diatomaceous earth to kill adult weevils in dry pea seeds. This is a non-toxic, natural substance that is readily available. If possible, seeds with holes should be removed before storing, as they will not germinate.

Harvesting for Food

Hand-pick legume pods when they are the appropriate stage of development for the variety. Leave about a third of the pods on the plants for seed saving. Dry seeds like soup peas and beans, chickpeas, and lentils will be harvested at the end of the season to use the following year. On the evaluation form, write down characteristics of the plants and the harvested pods as well as how they tasted.



Cascadia edible podded pea.

Harvesting for Seeds

Pods must be left on the plant until they are dry and brown. The legume seeds mature on the plant while it is growing. If you pick the pods when they are still green and soft, and allow them to dry, the seeds won't sprout.

Mature pods of some varieties of legume will shatter – the pods split open easily and drop seeds onto the ground. Keep in mind that adult pea weevils may be resident in garden peas you harvest.



You can hand pick pods individually, cut branches with mature pods, or cut off the plant at the base when most pods are mature. Slightly green pods will continue to mature, although the seeds might not last as long in storage as seeds that matured on the plant. Put them indoors or under shelter from rain and spread them out so they have good air circulation. Let the plants and pods dry for a couple of weeks.

Pea pods ready to harvest.

Threshing

Shell the pods by hand if you don't have too many. Dry pods are easy to split. Hand shelling may seem tedious, but it saves time in the long run, because you don't have chaff to deal with.

The easiest way to remove seeds from a large quantity of very dry pods is to walk on them. Remove as many large stems as possible, then put the remaining stems with pods onto a tarp. Fold the tarp over and walk or stomp on it. Pick the tarp up on 4 corners and shake it (easier to do with a partner). The seeds will roll to the bottom and you can take out the large chaff above them. Then you can remove the rest of the chaff by pouring the seeds back and forth between 2 buckets in the air stream of a fan or in the wind.

Record Keeping

Fill out an evaluation form for each variety. This information will help in deciding which varieties should continue to be grown for the seed bank and to determine whether the seeds you planted were "true", not a hybrid. If you keep a journal with notes on gardening activities, in November you won't have to try to remember when you planted which variety and how it grew.

Storage

Store seed bank seeds and your own in a paper envelope in a cool, dry place. Your seeds will last for years in the refrigerator if you make sure they are very dry and put them in a jar with a tight

lid – with a label on them. For seed bank seeds, on the envelope write the type (like bean), the variety (like Derby), the year, and your initials.

References

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