



Green Beans - Introduction



Green bean plants are either pole varieties that grow long vines or low-growing bush types. Most varieties are green, but there are also purple, red, yellow, and streaked beans. Green beans are several inches long and either round or flattened in shape. For fresh eating, they are picked young and tender before the seeds inside have fully developed. Most popular varieties have been bred to have stingless pods, but many gardeners prefer the flavour of the old-fashioned "string" types.

Bean plants are annual vegetables that grow quickly and are best planted in spring, as soon as all danger of frost has passed. The flowers appear about two months after planting. Harvest time varies greatly, depending on the type of bean and the desired stage or bean state: snap/green, shelling, or dry.

| Growing information | |
|---------------------|------------------------------------|
| Botanical Name: | Phaseolus vulgaris |
| Common Name | Green bean, snap bean, string bean |
| Plant Type | Annual vegetable |
| Sun Exposure | Full sun |
| Soil Type | Well-drained |
| Soil pH | Acidic (6.0 to 6.2) |
| Hardiness Zones | 2–10 |

Green Beans: Testing the learning: Introduction

- This crop is best grown in spring. True/False
- Green bean is an annual vegetables. True/False

Green Beans: Micro Jobbing: Introduction

- Register to grow Green bean.
- Tell us about your growing conditions.
 - What is the prevailing wind?
 - What are the normal temperatures during your growing program?
 - How many hours of daylight will you have during your growing period?
 - Is there pollution in the area?



Green Beans – Climatic Requirements

- The green bean is a summer crop that is very sensitive to frost.
- Temperatures only a few degrees below freezing usually cause severe damage to the plants.
- The optimum mean daily temperature for growth, yield and quality is 16 to 21°C.
- Temperatures above 35 °C, particularly when accompanied by dry winds, tend to cause the flowers and young pods to drop, the result being poor crops.
- If the night temperature often drops to 5 °C or lower, a large percentage of hollow pods will form.
- Frequent low night temperatures will also give rise to short, misshapen pods.
- Green beans are grown widely as a winter crop in the relatively frost-free areas of the Lowveld. However, it is evident that, although a certain area may be relatively frost free, it will not necessarily be suitable for winter production. The night temperatures may drop too low for normal pod formation.
- Similarly, good midsummer yields cannot be expected in areas where the day temperatures often rise above 30 °C.
- In the Lowveld, production will therefore be limited to autumn, winter and spring

Green Beans: Testing the learning: Climatic requirements

- Green bean is sensitive to frost. True/False
- The optimum mean daily temperature for growth, yield and quality is 16 to 21°C. True/False

Cowpeas: Micro Jobbing: Climatic requirements

- How is your crop doing?
- Take a photo of your crop every Tuesday.



Green Beans – Soil Requirement

Green beans are sensitive crops with a short growing season. They require a deep, well-drained but water retaining soil that will promote rapid establishment and an uninterrupted growth period.

Green beans can nevertheless be cultivated with success on soils that vary from sandy to relatively heavy clay. Soils with a high organic material content produce luxuriant growth but poor yield. The optimal pH value for green beans varies from approximately 6 to 6,5. Soils with a pH above 6,8, particularly strong alkaline soils, may cause a manganese deficiency and must be avoided. Acidic soils (below pH 5,5) can be used, provided that agricultural lime is applied prior to planting.

Remove weeds prior to planting to prevent competition for water and nutrients. As the bean grow, weed carefully around the plants, as their shallow roots can be easily damaged.

Green Beans: Testing the learning: Soil Requirement

- Green Beans are cultivated with success on soils that vary from sandy to relatively heavy clay. Yes/No
- Prior to planting remove weeds. True/False

Green Beans: Micro Jobbing: Soil Requirement

- Tell us about your growing conditions.
 - How much rain do you expect to have during the growing period?
 - Have you removed all weeds, take a photo of your land before planting.



Green Beans – Planting



Beans are generally direct_sown in the garden, as they dislike being transplanted. Their roots are shallow and easily damaged. The most important rule of growing green beans is not to plant the seeds too early. Plant after all danger of frost has passed. Seeds sown too early may rot in cold, damp soil, and the plants need warm weather to thrive.

Plant the seeds about 2.5cm deep and be sure to water the soil immediately after planting and then regularly until they sprout. Don't let the soil dry out.

- Bush beans can be planted in rows 76cm to 90cm apart, with seeds placed 2.5cm to 5cm apart. After the plants germinate, thin the seedlings to 7.5cm to 10cm apart.
- Pole beans need some type of support on which to grow. The support should be 180cm to 245cm tall. Be sure the trellis, teepee, fence, or other support is in place before you seed. Plant 3 to 4 bean seeds per pole, spaced at least 5cm to 7.5cm apart. Space poles, trellises, or teepees 91cm to 122cm apart.

Bush beans begin producing before pole beans. Most bush beans are determinate, meaning that the majority of the harvest appears within a very short period, usually 2 to 3 weeks. Succession planting every two weeks will keep your bush bean harvest going longer.

Green Beans: Testing the learning: Planting

- Plant the seeds about 2.5cm deep and be sure to water the soil immediately after planting. True/False
- Important to note, do not plant green bean seeds too early. True/False

Green Beans: Micro Jobbing: Planting

- Take a photo of the crop and soil
- Which varietal are you planting?



Green Beans – Fertilisation and Irrigation

Fertilisation

The application of fertiliser should be based on test results of the soil. Fertiliser recommendations can only serve as rough guides because no two soils will have exactly the same fertility. For a correct recommendation, soil analysis is therefore a prerequisite. Green beans, like all legumes, form a symbiotic relationship with a specific soil bacterium. Rhizobium spp. make atmospheric nitrogen available to the plant by a process called nitrogen fixation. Contact your U Can Grow agent.

Irrigation

Irrigation is a necessity for beans on light, sandy soils and even on heavier soils. Adequate irrigation during flowering and pod development is needed for best yields.

Green beans need 26mm of water per week. Use a drip irrigation system for supplemental watering to avoid splashing soil onto the leaves, which can lead to soil-borne disease. To determine if the plants need water, stick your index finger about 2.5cm into the soil near the base of the plant. If the soil is dry, it's time to water. Plants that are under-watered will stop flowering. Beans have shallow roots, and mulching helps to keep them cool and preserve moisture in the soil.



Green Beans: Testing the learning: Fertilisation and Irrigation

- Soil needs to be tested? Yes/No
- Green beans need 26mm of water per week. True/False

Green Beans: Micro Jobbing: Fertilisation and Irrigation

- Do you have access to other water?
- Show us how you will get the water to your crops.
 - Take a picture.
- Have you use fertiliser or compost? Yes/No
- If you have used fertiliser or compost, please take a photo of the product



Green Beans – Weed control

Cultivation and hoeing, which are employed primarily to keep down and destroy weeds, should start when the bean plants first appear above the soil and should be shallow, especially as the plants approach maturity. Many of the feeding roots of beans are close to the surface and are damaged easily by deep cultivation.



Green Beans: Testing the learning: Weed Control

- Hand weeding of the infested areas is the most important control method at present? True/False

Green Beans: Micro Jobbing: Weed Control

- Relook at the plan with your agent and plan for chemicals.
 - This plan must include which of the chemical you will use and when.


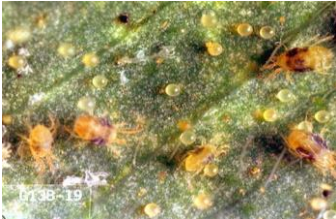



This stage of planning and growing may not be necessary if you are using natural growing program. If you are not going to use chemicals, please tell us.

Using chemicals – yes or no



Green Beans – Pest and Disease Control

Lots of insects and animals love beans as much as you do, including:

| Pest | Insect | Discription |
|-----------------------------|---|---|
| Mexican bean beetles |  | These pests will eat the flowers, the beans, and especially the leaves. |
| Spider mites |  | These tiny pests pierce the leaf surface and suck the sap, often causing leaves to die. |
| Japanese beetles and aphids |  | Japanese beetles and aphids may also attack bean plants. |
| Bean leaf beetles |  | Can girdle the stems near the soil line and chew holes in the plant's leaves. |
| Deer and groundhogs |  | Will eat entire bean plants, and fencing is necessary to stop them. |

Diseases:

Fungal diseases, such as Alternaria leaf spot, can be a problem in damp conditions. Other diseases, like Anthracnose, bacterial blight, white mold, bean rust, and mosaic virus can also affect bean plants. Help prevent diseases by keeping the vines dry; don't overcrowd the plants, and provide plenty of good air circulation. You can also look for plant varieties that are bred for disease-resistance.



Green Beans: Testing the learning: Pest and Disease Control

- What is the most important two things I need to do every day?
 - *Walk around the crop*
 - *Pull out the weeds*
 - *Look for aphids (small bugs)*
 - *Ensure there is enough water.*
- How long does the crop take to grow?
- What will I use to spray the crop down?

Green Beans: Micro Jobbing: Pest and Disease Control

- Take a photo of your crop every Tuesday.
- Complete the job sheet every week.

| Date | Task | Proof of task |
|---------------|---|---------------|
| Day 1 | Prepare lands | |
| Day 2 | Plant seed | |
| Week 1 | How much water did the crop get this week? | |
| | Did you add fertiliser? If yes, how much. | |
| | Were there lots of weeds to take out? | |
| | Did you need to spray for pests? If yes, how much. | |
| | Did you need to spray for diseases? If yes, how much. | |

The above needs to pop up every Tuesday for the full growing cycle of 20 weeks



Green Beans – Harvesting Process

Harvesting green beans is an ongoing task, and the more you pick, the more beans the plants will set. You can start to harvest any time after the beans form. Gardeners usually harvest the beans when they are young and tender--about the size of a small pencil. Overly mature beans can be tough and stringy.

In general, bush beans are ready to pick in 50 to 55 days after planting. Pole beans will take 55 to 65 days, depending on the variety. Check the packet to be sure your choice will have time to mature in your growing season. Harvest by gently pulling each bean from the vine or by snapping them off at the vine end. Be careful not to damage the plant when harvesting.

Pole beans need time to allow their vines to grow before they start setting beans. They begin producing later than bush beans but continue to produce throughout the growing season. Keep harvesting the beans, or the seed pods will mature, indicating to the plant that it should stop flowering and setting beans.



Green Beans: Testing the learning: Harvesting

- Can I hand harvest green beans? Yes/No
- Harvest by gently pulling each bean from the vine or by snapping them off at the vine end. True/False

Green Beans: Micro Jobbing: Harvesting

- When your crop is ready for harvesting, take a photo of the crop before harvesting.



Green Beans – FAQ

1. How many times does a green bean plant produce?
 - a. Bush beans – Plants are small, compact (in the two-foot range), and mature more quickly, some within 50 days – so you can start them from seed for much of the summer. They produce most of their crop at once, though the plants will keep producing if you keep them well-harvested.
2. How many days does it take to grow green beans?
 - a. Bush beans are generally ready to harvest within 50–55 days, while pole beans can take 55 to 60 days. The bean pods are ready to harvest when they're four to six inches long and slightly firm, and before the beans protrude through the skin.
3. What month do you plant green beans?
 - a. You can sow green bean seeds directly into the garden once the soil has warmed in the spring. Like other bean types green beans are frost-sensitive, so plant them in spring once the danger of frost has passed. You can also plant green beans in the fall, about 10 to 12 weeks before the first expected frost.
4. How long does it take from the time beans are planted until they are harvested?
 - a. Time It Takes Until Harvest: On average, it takes bean plants a little less than two months to produce beans and fully mature, but different cultivars have different maturities. The time can vary from 45 to 75 days, depending on the cultivar and the climate.
5. How many beans will one plant produce?
 - a. My rule of thumb is to have 2 or 3 pole bean plants growing per linear foot of row or 5 or 6 bush beans in the same space. Put into easier to deal with terms, it takes about 100 ft of pole beans to produce enough to feed a family of 4 for a year.
6. Why are my green beans not germinating?
 - a. If there was too much moisture in the soil, the seeds may have rotted. If there was not enough moisture in the soil, the seeds could have begun germinating but then died because of a lack of water. ... If seeds are planted too deeply, they will often fail to germinate.
7. Do green beans climb?
 - a. Green beans are all climbers to some extent but they are generally classed as being pole beans, which grow five or six feet, or bush beans which only grow a foot or two.
8. How can I increase the yield of my green beans?
 - a. Mulch plants with straw or shredded leaves to hold soil moisture and reduce weed growth. When growing green beans, harvest every few days to encourage the plants to keep producing fresh flowers and pods.
9. Do pole beans or bush beans produce more?
 - a. Pole beans take slightly longer than bush beans to produce their crop, usually between 10 and 15 additional days. Have a longer harvest. Pole beans draw a lot of energy from their vines and leaves, meaning they can continue producing beans over a period of time as long as one month, with continual harvesting.