

Home Gardening Series

Beans

Dr. Craig R. Andersen
Extension Horticulturist -
Vegetables

Environment

Light – sunny
Soil – well-drained
Fertility – medium-rich
pH – 5.8 to 7.0
Temperature – warm
Moisture – average

Culture

Planting – after danger of frost or late summer
Spacing – according to type
Hardiness – tender annual
Fertilizer – medium feeder

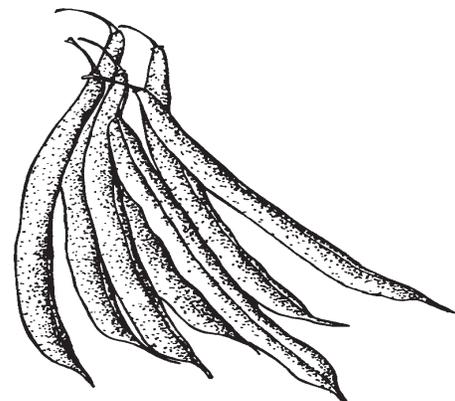
Beans – *Phaseolus*

Snap beans (*Phaseolus vulgaris*) of all types originated in tropical southern Mexico, Guatemala, Honduras and Costa Rica. Their probable area of origin is expanded by some to include the Andes regions of South America. Lima beans (*Phaseolus lunatus*), however, are indigenous to tropical America. Scarlet runner beans (*Phaseolus multiflorus*) also originate in South America and were introduced into Britain for their attractive flowers in 1683.

Beans are tender, warm-season vegetables that rank second in popularity to tomatoes in most home gardens. Beans may be classified by growth habit (bush or pole beans), use (as immature pods, shellouts and dry beans) and type (green and yellow snap and lima beans).

Bush beans (also called bunch beans) stand erect without support. They are the most popular because

they yield well and require the least amount of work. Green bush beans were formerly called “string beans” because of the fiber development along the top and bottom of the pods. Plant breeders have reduced the presence of these fibers, and green beans are now called “snap beans.” Bush beans are available in green, yellow wax and lima varieties.



Pole beans climb supports and are easily harvested. They are available in green and lima varieties.

Cultural Practices

Planting Time

Beans are sensitive to cold temperatures and frost. Plant beans after all danger of frost is past in the spring and when soil temperature is above 62 degrees F. They are usually planted in mid to late April in southern Arkansas and early May in northern Arkansas. To ensure a continuous supply of beans, plant every two weeks until mid-August.

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Cultivars

Crop	Cultivar	Days to Maturity	Seed/ 100 Ft of Row	Disease Resistance or Tolerance	Sources	Remarks
Green Beans						
Bush	Provider	52	1 lb	Mosaic	7	Extremely high yielding, good quality, purple seeds.
	Bush Blue Lake	55	1 lb	Mosaic	1, 2, 3 6, 7, 8	Bush habit, dark green blue lake type, good quality pods, white seed.
	Contender	48	1 lb	Mosaic	2, 6, 7, 8, 9	Standard early bean.
	Roma II	56	1 lb	Mosaic	1, 2, 5, 8, 9	Italian form of Romano pole, flat pods 4 to 5 inches long.
	Topcrop	48	1 lb	Mosaic	1, 3, 8, 9	Early, good yield, green pods, brown buff mottled seed.
Bush Wax	Resistant Cherokee	50	1 lb	Mosaic		Bright yellow pods, widely adapted, black seed.
	Gold Crop	52	1 lb	Mosaic		White seeds.
Pole Snap	Kentucky Wonder	65	1/2 lb		1, 2, 3, 5, 6, 9	Distinctive flavor, well adapted to southern conditions, buff brown seed.
	Kentucky Blue	58	1/2 lb		1, 2, 3, 4, 5, 8	Round, smooth pods, All-American winner.
Dry Beans	Dwarf Horticultural	80	1 lb		1, 3, 9	Bush habit, good yield, brown seed with dark brown mottle.
	Pinto	80	1 lb		2, 5, 9	Good yield, good quality, light brown seeds with dark brown mottle.
	Kidney	90	1 lb		2	Good yield, good quality, large, long, dark red seed.
Lima Beans (Pole and Bush)	Jackson Wonder	65	1 lb		2, 3, 5, 6, 9	Bush, buff mottled, purplish black seed, yields well, tolerant to heat and drought.
	Nemagreen	60	1 lb			Bush, green-seeded baby lima, used in gardens where nematodes are a problem.
	Thaxter	70	1 lb	Race A downy mildew		Bush, green-seeded baby lima, well adapted to Arkansas conditions, good yield.
	Dixie Butter Pea (Speckled)	76	1/2 lb		5, 9	Bush, small, nearly rounded speckled seeds, productive under hot, dry conditions.
	Sieva	77	1/2 lb		1, 9	Pole, small, dull, white, flat seed, some heat tolerance.
	Florida Butter (Speckled)	71			6, 9	Pole, similar to Sieva but with purple mottled seed.

Sources

There are many different sources for these cultivars. Some of these include the following:

- 1vh W. Atlee Burpee Company
300 Park Avenue
Warminster, PA 18974-0001
Tel: 1-800-888-1447
- 2v Chesmore Seed Company
5030 Highway 36 E.
St. Joseph, MO 64507
Tel: 1-800-383-0865
- 3vh Gurney's Seed and Nursery Company
110 Capital Street
Yankton, SD 57079
Tel: (605) 665-1930
- 4v Johnny's Selected Seeds
Rural Route 1, Box 2580
Albion, ME 04910-9731
Tel: (207) 437-4301
- 5vh Park Seed Company
1 Parkton Avenue
Greenwood, SC 29647-0001
Tel: (800) 845-3369
- 6v Southern Exposure Seed Exchange
P. O. Box 170
Earlyville, VA 22936
Tel: (804) 973-4703
- 7vh Stokes Seeds, Inc.
P. O. Box 548
Buffalo, NY 14240-0548
Tel: (716) 695-6980
- 8v Twilley Seed Company, Inc.
121 Gary Road
Hodges, SC 29653
Tel: 1-800-622-7333
- 9v Willhite Seed Company
P. O. Box 23
Poolville, TX 76487
Tel: 1-800-828-1840

v – vegetables

h – primarily herbs

Spacing and Depth of Planting

Plant seeds of all varieties 1 to 1 1/2 inches deep. Bush beans should be planted 2 to 3 inches apart in rows that are at least 18 to 24 inches apart. Plant pole beans 4 to 6 inches apart in rows 30 to 36 inches apart or in hills (4 or 6 seeds per hill) 30 inches apart with 30 inches between rows.

Care

The seeds of most bean varieties tend to crack and germinate poorly when the moisture content of the soil is too high; therefore, do not soak bean seeds before planting or water immediately after planting. Frequent, shallow cultivation and hoeing are necessary to remove small weeds. Beans are shallow rooted; close, deep cultivation injures the plant roots, delays harvest and reduces yields.

Harvesting

Green and Wax Beans – Harvest when the pods are firm and crisp but before the seeds within the pod have developed significantly. Pick beans after the dew is off the plants and when beans are thoroughly dry. If beans are picked when the leaves are wet, bean bacterial blight, a disease that seriously damages the plant, can spread. The bean plant continues to form new flowers and to produce more beans if all pods are removed before the seeds mature.

Lima Beans – Harvest lima beans when the pods are plump and firm. The pods of different varieties vary greatly in external appearance as the beans are developing. Test pick a few pods to make sure beans are at a desirable stage of maturity. Lima beans are best when young; they become mealy and tough-skinned if allowed to remain on the plant beyond peak maturity. Bush-type lima beans are usually harvested in two to three pickings. The pole variety continues to flower and yield until frost if the old pods are removed before the beans mature.

Horticulture Beans – Harvest horticulture beans when the pods start to change from green to yellow. Then, the beans, often called “shellouts,” are fully formed and can be stored for a short time under refrigeration.

Dry Beans – Dry beans are seldom planted in home gardens because they are generally available in food markets at reasonable prices. They may be grown much like snap beans and produce good yields. Pull the vines when the leaves of the plant have turned yellow and begin to fall naturally. Dry the plants in the garden or on a clean floor. When the plants dry up, pods start to split and the seeds are easily removed. Store dry bean seeds in jars or cans in a cool, dry location.

Common Problems

The bean mosaic disease causes plants to turn a yellowish green and produce few to no pods. The leaves of infected plants are mottled yellow and are usually irregularly shaped. The only satisfactory control of this disease is to use mosaic-resistant bean varieties. These varieties are listed in agriculture fact sheet, *Vegetable Cultivars for Arkansas Home Gardens*, FSA6021.

Bright yellow or brown spots on the leaves or water-soaked spots on the pods are signs of bacterial bean blight. Bacterial blight is best controlled by planting western-grown, disease-free seed, avoiding working among wet bean plants and removing all bean debris from the garden.

Bean leaf beetles feed on bean plants, causing holes in the leaves. These beetles can cause serious damage, especially when the plants are young. Use a suggested insecticide for control.

Overfertilization may cause the plants to become too vegetative with dense foliage that is susceptible to diseases. High nitrogen levels will reduce pod set and yield.

diseases – mosaic (use resistant varieties); anthracnose; bacterial blight (use disease-free, western-grown seed); seed rot (do not plant in cold, moist soils); root and stem rots

insects – Mexican bean beetles and larvae, corn earworm, mites

cultural – large plants with few beans (excess nitrogen); blossom drop (excessive heat, dry winds)

Harvesting and Storage

days to maturity – snap beans (50 to 60 days), pole limas (85 to 110 days), bush limas (65 to 75 days), pole beans (60 to 110 days)

harvest – snap beans (full size pods, small beans or larger beans since pods are still tender; pods break easily with a snap when ready; seed should not cause pods to bulge); lima/dry beans (seeds will be full sized and pods will be bright green, end of pod will be spongy); dry beans of all types (pods should remain on bush until dry and brown)

approximate yields (per 10 feet of row) – snap beans (3 to 5 pounds); lima beans (4 to 6 pounds)

amount to raise per person – snap beans (8 pounds); limas (5 to 10 pounds)

preservation – drying, freezing and canning

Frequently Asked Questions

Q. My beans appear healthy, but few pods are formed. What is the problem?

A. The blossoms drop and fail to form pods during periods of hot, dry and windy weather.

Q. Is it a good practice to plant pole beans at the base of corn plants for double cropping?

A. No. Neither crop will reach its maximum potential. Weed control becomes difficult, and cornstalks offer weak support when the beans are maturing.

Q. What are the fuzzy, bright yellow insects that are on my beans?

A. These are the larvae of the Mexican bean beetle. The adult resembles a large ladybug. The larvae do the most damage. Use the suggested insecticide for control.

Q. Why do some snap bean varieties have white seeds?

A. Most bean varieties are developed for the canning and freezing industry. When varieties with colored seeds are used, the cooking water is slightly off-colored. White seed is preferred because it does not discolor the cooking water.

Q. Will bean varieties cross in my garden?

A. Since the flowers are self-pollinated, bean varieties will not usually cross. Obtain new seeds each year to avoid seedborne diseases.

Q. Occasionally green beans germinate and come up but only have two leaves or maybe none at all. What is wrong?

A. This condition is termed “snake head” or “bald head” and is generally caused by planting cracked or damaged seed. Occasionally, the beans literally pull their heads off when forced to germinate and come through heavy or crusted soil. Planting high-quality seed and maintaining the soil in a moist and friable condition will help eliminate this problem.

Q. What causes my plants to bloom but not set pods?

A. Excessive fertility causes beans to bloom profusely but fail to set any pods. High temperature combined with low humidity also cause beans not to set. Most recommended varieties will produce a crop of high-quality beans when planted at the right time and without excessive fertility. A light fertilization after the first harvest will greatly increase subsequent yields and improve quality of later-harvested beans.

Q. Why are some types of beans able to climb and others are not?

A. Pole beans are characterized by an indeterminate or vining growth habit, while bush bean varieties are determinate. In the vining type, flowers form in the axils of the leaves and stem, allowing the stem to grow indefinitely. In the determinate-type growth, the main growing point ends in a flower cluster, preventing stem elongation. Beans climb because of the twining growth habit of the stems.

Q. What causes garden beans to become tough, stringy and fibrous?

A. High temperature during pod formation is usually the cause. Excess fiber and vascular tissue formation in the pod walls make them tough.

Q. Can I save seeds from this year's bean crop for next season's garden?

A. Yes. Since beans are self-pollinated, they will breed true from one year to the next. However, certain diseases can be seedborne and may appear in next year's garden if seed from the previous garden are used for planting.

Q. Can mung beans be grown in Arkansas gardens?

A. Yes. Seeds of the mung bean are one of the sources of sprouts. Plant them after all danger of frost in rows 3 feet apart with plants 3 to 4 inches apart in the row. The pods are ready for harvest when they are fully mature and dark brown in color. Remove the seeds, and germinate under clean, moist and dark conditions to produce long, tender, nutritious sprouts.

Q. What is the "yard-long bean" advertised in many seed catalogs?

A. The "yard-long bean" or asparagus bean is a close relative of the southern pea and produces pods up to 3 feet long. The plants are vining and need support. The pods are tender when young and frequently used as snaps. For this use, harvest them when the pods are partially developed and before seed enlargement shows. For shelling, harvest them when the seeds are full size but still immature. They may also be shelled when fully mature.

Q. Can I grow soybeans in my home vegetable garden?

A. Yes. Certain varieties, commonly called vegetable soybeans, are milder in flavor than those grown in fields. Soybeans are highly nutritious and are normally eaten in the green shell stage. The pods should be thick when fully mature but still green and tender. Seed them in rows 30 to 60 inches apart with plants 2 to 3 inches apart in the row.

Q. What is a broad bean?

A. Broad beans, which are also called Fava, horse or Windsor beans, are not true snap beans. They are closely related to vetch and will grow in cool weather unsuited for green snap beans. Varieties commonly grown include Broad Windsor and Long Pod. They can be planted very early in the spring. The commonly grown varieties require from 85 to 120 days from seeding to harvest.

Q. My beans came up to a good stand and then began to die.

A. This is a seedling disease caused by a fungus, *Rhizoctonia*. Control for this disease includes a combination of practices. First, plant on a raised bed so the soil does not stay wet around these plants and will warm up faster. Second, use a

fungicide seed treatment. In areas where this disease has been a problem, rotation is essential. The disease will be most severe during early spring.

Q. My beans are very stunted. When I removed them from the soil, I found large galls or swelling on the root system.

A. These are root-knot nematodes. Root-knot is a species of nematode that causes galls or swelling on plant roots. It restricts the uptake of nutrients from the root system to the foliage, resulting in a yellow and stunted plant. Root-knot lives in the soil and can survive on many weed and vegetable crops.

Q. My bean leaves have large brown spots on them. The damage looks more severe near the soil. However, it is beginning to cover the plant.

A. This is Anthracnose, caused by an airborne fungus. Control it with fungicide sprays. Begin applications at the first sign of the disease. Repeat every ten days for two to three applications.

Q. The foliage on my beans has angular, dead spots. Some spots have a yellow halo around them. The severely infected leaves are falling off the plants.

A. This is bacterial blight of beans. There are three bacteria that can cause it. All can be controlled with foliar sprays of a copper fungicide such as Kocide 101 or copper bordeaux. This bacteria can also be seed transmitted and spread by working in the beans when the foliage is wet.

Q. As they reach maturity, my bean pods are covered with brown rotten spots. Once the beans are picked, brought inside and placed in the crisper, these spots develop rapidly into a white fungus.

A. This is Anthracnose of beans caused by a fungus. Apply a fungicide on a regular schedule. Under severe conditions this disease can affect the leaves, stems and pods of the plant causing severe defoliation, loss of leaves and sometimes death. When picking beans to be placed in a crisper for use later, examine them closely. If any pods are affected by this disease, discard them.

Q. I have noticed toward early summer the leaves of my green beans develop rusting or browning appearance. What could be causing this problem?

A. The beans are probably infested with spider mites, one of the more destructive pests of garden vegetables, especially green beans, tomatoes and

eggplant. Apply approved miticides when the mites are noticed. The use of sulphur, begun early in the season, will usually result in satisfactory control.

Q. My beans come up every year looking as if they are damaged. The leaves are curled and snarled. What is my problem?

- A. The apexes or shoots of the leaves were damaged when they were very small by a tiny insect called a thrip. The thrip's rasping mouthparts damage the tissue of the leaf's growing point causing the lead growing point to "bleed" or secrete plant juices. The thrip then feeds on these juices. Most plants recover from this damage. Control thrips with an insecticide at seven- to ten-day intervals. Begin spraying when plants first emerge since most damage occurs then. Use as directed on the label.

Q. I have little black weevils chewing up my dry beans and peas. How did they get into the jars? How do I prevent this problem?

- A. These black weevils are cowpea curculios. Adults laid eggs in the beans and peas while they were growing in the garden. The new adults are now emerging from the beans. They have always been in the beans. To prevent the problem, temperature treat dry beans before storing. Two methods can be used: (1) Place in freezer for 48 hours or more. (2) Place in oven at 120 degrees F for 30 minutes.

Q. I have small, black insects with shiny wings all over the underside of my bean leaves. Will they hurt my plants? If so, how do I get rid of them?

- A. These are aphids that can cause stunting of plants, deformed growth and low yield if infestation is heavy. Control includes applying an insecticide as directed on the label.