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# Beans in the Garden

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## Summary

All beans require full sun and fertile, well drained soil for maximum yield. Incorporate plenty of organic matter and a complete fertilizer into the soil before planting. When soils are above 60°F, space rows 18-24 inches apart and plant seeds 1 inch deep and 2-3 inches apart in the row. Plant beans every 14-21 days until mid-July for a continuous crop throughout the growing season. Beans require regular watering particularly at flowering, so maintain soils near field capacity. Water stress will reduce yields and pod quality. Organic mulches help conserve water, supply extra nutrients and reduce the need for weeding. Control insect and diseases if they occur. Harvest when pods are plump and full but before seeds develop. For dry beans delay harvest until pods are yellow and dry. Use fresh beans immediately for best quality.



## Recommended Varieties

There are many good bean varieties for sale in local gardening outlets and through seed catalogs. Most grow well in Utah. Pod shape, size, and color vary among varieties. Here is a list of some potential varieties and plant types that have performed well in Utah.

Bean Types	Suggested Varieties
Bush Beans	Blue Lake, Greencrop, Gold Crop, Kinghorn Wax, Royal Burgundy, Slenderette, Strike, Tendercrop
Pole Beans	Blue Lake types, Kentucky Wonder, Romano
Dry Beans	Kidney, Great Northern, Pinto, Blackbean, Blackeye Pea

## How to Grow

**Soil:** Beans will grow in all soil types provided they are rich in organic matter, well drained, and fertile.

**Soil Preparation:** Before planting, incorporate 2-3 inches of well composted organic matter and 1 lb of all-purpose fertilizer (16-16-8) per 100 square feet of garden area. Work compost and fertilizer into the soil to a depth of 6 inches.

**Plants:** Beans are warm weather vegetables that require soil and air temperatures above 60°F for best germination and plant growth. Start planting beans one week before the last frost-free date for your area. Seedlings will emerge in 7-10 days when planted in soil that has warmed to 65-85°F.

**Planting and Spacing:** To plant 100 feet of row, you will need about 3-4 ounces of seed. Extra seed can be stored and used the next year. Plant seeds 1 inch deep, spaced 2-3 inches apart, in rows 18-24 inches wide. No thinning is necessary if plant stands are too thick. Plant bush beans every 14-21 days until mid-July for continuous production throughout the growing season. Bush beans require 50-60 days to mature depending on variety. Pole beans generally produce pods over a very long time period so one or two plantings are necessary each year. Dry beans planted after July 1 generally will not mature in cooler areas of Utah but will produce mature seeds in the warmer regions of Southern Utah. Mulching the crop during the summer will reduce soil water loss and increase nutrient availability.

**Support:** Most bean varieties are bush plants that do not need support during growth. Pole beans are climbing types that flower over long time periods thus yielding more when trellised. Trellises also make harvest easier. Wooden poles or other fencing materials make ideal supports for beans. Plants climb naturally so little additional work is required other than construction of the supports.

**Water:** Beans require regular watering throughout growth for best production. Soil moisture levels should be maintained near field capacity. Do not overwater as wet soils promote root rot diseases and slow plant growth. Water needs are most critical during flowering and pod sizing. Drought stress during and after flowering will decrease yield due to flower abortion and reduce pod size and increase stringiness. For dry beans, reduce water applications as the seeds begin to mature. Watering amounts depend on soil type and organic matter content.

**Fertilization:** Beans do not require additional fertilizer if an all-purpose fertilizer and compost was applied at planting. Additional applications of nitrogen will over-stimulate leaf growth, delay flowering and reduce pod set. Most beans fix some nitrogen from the air via soil bacteria attached to the plant roots.

**Mulches and Row Covers:** Plastic mulches can help conserve water, provide some frost protection, and allow earlier planting and maturity. Fabric row covers also protect young plants from frosts. When using plastics and row covers, plant 2-3 weeks before the last frost date for your area. Apply organic mulches such as grass clippings, straw, and shredded newspaper in the heat of summer to help control weeds, improve soil water holding capacity, and increase nutrient availability.

## Pest Control

**Weeds:** Control weeds with regular cultivation, especially when plants are small. Avoid root damage that slows plant growth. Closer row spacing and dense growth help reduce weed pressure.

**Insects and Diseases:** Most mustard is fast growing and is not susceptible to many production problems. Rotating locations from year to year helps control most diseases.

Insect	Identification	Control
Mexican Bean Beetle and Leaf Beetle	These beetles are round, copper or tan colored with black spots on their wings. Beetles look like lady beetles. Larvae feed on roots, leaves, and pods doing the most damage when plants are small. Look for yellow eggs under leaves.	Dust small plants with appropriate insecticides. Large, flowering plants can withstand feeding pressure with minimal loss in production.
Leafhoppers	Small green wedge-shaped sucking insects that feed on leaf juices. Leaves curl and dry out.	Difficult to control as insects are very mobile.
Cutworms and Army Worms	These green, reddish, or black caterpillars grow up to 2 inches long. Army worms will climb the plants and feed on leaves and stems. Cutworms do most of their feeding near the soil surface.	Control weeds and debris in the garden that provide cover for the worms. Use appropriate insecticides if populations are high.

Disease	Symptoms	Control
Bean Blight	Small water soaked spots that enlarge and form large lesion on stems, leaves, and pods.	Damp conditions favor this disease. Water carefully and allow soil to dry between irrigations.
Root Rot and Damping Off	Seedlings darken, wilt and die. Associated with cool, wet conditions in the spring.	Use treated seed. Allow soils to dry before re-watering.

## Harvest and Storage

Bush and pole beans are harvested before the pods are fully mature. Pods should be full size, with small seeds, and firm, crisp flesh when picked. Pods are ready for harvest about 7-14 days after flowering. Pick regularly as the plant will flower and mature the pods for 2-3 weeks on bush varieties and for 5-6 weeks on pole types. Harvest and use immediately for best quality and flavor. Refrigerate if not used immediately. Dry beans are harvested when the pods are fully mature and they are beginning to dry. Pull up the plants and lay in a row in the garden for 5-7 days. Once plants are dry, remove the pods, shell out the seeds and allow some additional time for the seeds to dry further. For long term storage, keep in sealed containers in a cool dry place.

## Productivity

Expect 75 lbs per 100 feet of row from bush types and 125 lbs from pole types. Plant 5-15 feet of row per person for fresh use and an additional 10-20 feet of row per person for canning or freezing. With dry beans expect about 20-25 lbs of seed per 100 feet of row.

## Nutrition

Fresh bean pods are high in fiber, low in calories, and a good source of vitamin C. Dry bean seeds are excellent sources of protein, phosphorus, iron, vitamin B1, fiber, and have very low levels of cholesterol.

## Frequently Asked Questions

***I sometimes have problems getting my beans to emerge in the garden.*** Beans generally germinate and emerge well regardless of garden conditions. If you plant when soils are below 60°F, germination is greatly reduced. In heavy clay soils, crusting may be a problem which affects emergence and pay attention to the seed planting depth. Finally, older seed or poorly stored seed may not germinate and emerge as expected.

***Why are the flowers falling off my plants?*** Plants may have been water or heat stressed just prior to or after the flowers open. Hot weather (above 95°F) and dry conditions cause the plants to shed (abort) flowers. Keep the soil moist and use organic mulches during the flowering stage to minimize stress.

***Why do bean pods get stringy?*** Stringy beans are further evidence of heat or water stress. Fibers in the pods form during stress making them stringy.

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