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EC 72-1223

Growing Snap Beans in The Home Garden

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Extension Service, University of Nebraska-Lincoln College of Agriculture Cooperating with the
U. S. Department of Agriculture and the College of Home Economics
E. F. Frolik, Dean J. L. Adams, Director

Growing Snap Beans in the Home Garden

By R. E. Neild
Assoc. Prof. Horticulture

Snap beans are a popular vegetable. Present per capita consumption of 8½ pounds per year is more than 25% greater than 10 years ago. About 25% of these beans are consumed fresh, 66% canned and the remainder frozen.

Results of numerous research trial plantings between 1954 and 1966 show that snap beans may be successfully grown in all regions of Nebraska.[1] When planted at the right time and given proper care they are one of the more easily grown vegetables in home gardens.

Snap beans require only relatively small space; their seed is large and easily planted; plants grow rapidly and may be harvested 46 to 72 days from planting; they can be planted to provide "garden fresh" quality food from early summer to frost.

Snap beans require relatively little preparation for canning or freezing and retain much of their quality when preserved in this manner.

Circulars "Home Freezing of Fruits and Vegetables EC 61-926" and "Home Canning of Fruits and Vegetables EC 70-925" are available at your local Extension office or by writing Department of Information, College of Agriculture, University of Nebraska, Lincoln, Nebraska 68503.

Ten to 15 feet of row (1 pkt. of seed) usually will produce enough fresh snap beans for the seasonal needs of one person. An additional 30 to 40 feet of row should be planted per person if snap beans are to be canned or frozen. One pound of seed is sufficient to plant 100 feet of row.

Crop Requirements

Snap beans are a warm-season crop and do not tolerate frost nor prolonged exposure to temperature near freezing. They grow best when the monthly maximum and minimum temperatures are below 85° and above 50° F. Germination is delayed and seed is subject to rotting at soil temperatures below 57° F.

[1]Honma, Shigemi (1954) Horticulture Progress Reports 23 and 25; anonymous (1961) Horticulture Progress Report 34; Warren, J. A. (1962) Horticulture Progress Report 35; Young, J. O. (1962) Horticulture Progress Report 37; Coyne, D. P. (1965) Horticulture Progress Report 49, and Neild, R. E., D. S. Nuland and J. O. Young (1967) Misc. Publ. 18, Agriculture Experiment Station, University of Nebraska.

An adequate supply of moisture is essential for high yield and quality. Sufficient moisture during flowering and pod development is especially important.

Hot dry winds damage flowers, reduce pod set and yield and impair quality. High temperature during blossoming is injurious to pollen and may result in decreased pod set and poorly formed pods.

Snap beans can be successfully grown on a wide range of soils if drainage is adequate. Lighter textured soils warm up faster in the spring and are preferred if early production is important. The crop grows poorly on soils having high salt concentrations or excessive amounts of boron.

A high content of soil organic matter is desirable as soils having a tendency to crust have adverse effects on emergence. Supplemental irrigation is important to assure high yield and quality. This is particularly true on sandy soils and in the western 2/3 of Nebraska.

Varieties

Snap beans are broadly classified into two major groups on the basis of growth habit—a bush type and a climbing or pole type. Within each group, they may be categorized according to color of pod—green-podded or yellow-podded (wax) beans.

Contender, Top Crop, Tendergreen and Bush Blue Lake 274 (a high quality variety) are green-podded bush type varieties that have performed well in Nebraska trials. Cherokee Wax and Kinghorn Wax are desirable yellow-podded varieties but have not yielded as well as the green-podded bush type bean.

Kentucky Wonder, a pole type variety available with green and yellow pods, produces good yields of high quality beans. It matures later than most bush type varieties but if kept closely picked will continue to bear for a longer time.

Pole beans require 2 to 3 times as much space as bush beans so their use may be limited in small gardens.

Certain serious bean diseases are seed-borne. Bean seed is easily damaged from improper and rough handling. Bean seed loses germinating ability quite rapidly with time. Seed over two years old should not be planted. It is a poor practice to plant seed saved from last year's garden crop. Obtain seed only from reputable companies and seed dealers.

Soil Preparation and Fertilizer

Seedbed preparation is better and chances for good stands are greater if snap beans are planted following a row crop.

If sod or large quantities of crop residue are present, plowing or spading in the fall is preferred.

If cover crops are used, it is important that the residue be completely turned under at least 7 days before planting. Do not work the soil when wet. Squeezing a handful of soil makes a good test. It should crumble but not feel sticky.

Soil should be plowed or spaded to a depth of 6 to 8 inches and thoroughly worked into a smooth level condition to facilitate a uniform depth of planting.

Most Nebraska soils are usually well supplied with phosphorus and potassium but snap beans may benefit from an application of 2 to 6 pounds (4 to 12 cups) of ammonium sulfate or 1½ to 4½ pounds (3 to 9 cups) of ammonium nitrate per 1000 square feet.

The larger amounts should be applied on light textured soils or those low in organic matter that haven't received recent application of manure or compost. When the larger amount is used it is advisable to work half into the soil ahead of planting and use half as a side dress application or in irrigation water about 4 weeks after planting or just before blossom. Side dress fertilizer applications should be 3 to 6 inches to the side of the row and 2 to 4 inches below the seed.

Planting

Plant bush type varieties 1 to 2 inches apart in 18 to 36 inch rows. An average of 7 to 9 plants per foot is considered a good stand. A strong cord stretched taut between two stakes will help keep the row straight while a 1 to 1½"furrow is made with the edge of a hoe or while the seed is placed at a 1 to 1½" depth with a planter.

Plant pole beans in hills 3' x 3', 3' x 4' or 4' x 4', four to six seeds per hill, then thin to 3 to 4 plants per hill if necessary. Use poles 8 to 9 feet long to support the climbing plants. Set poles in the ground to a depth of 1½ to 2 feet before planting the seed. Place the poles in an inclined position so that those from 4 hills may be joined and tied at the top like the poles of a tepee. If saplings are used as poles leave the bark and stubs of side branches as a rough surface for the climbing plant.

Snap beans mature rapidly after pods are set. Depending on temperature, they may be ready for harvest 7 to 10 days from blossom. Once harvest maturity is reached they remain suitable for eating only 4 to 6 days. During this time, size and yield are increasing. Make successive plantings to provide good quality beans for a long period of time.

Do not plant snap beans until soil temperature at sowing depth is about 60° F. Latest planting should be such that the beans will have opportunity to mature before cool temperature and frost.

Earliest and latest planting dates and consequent earliest and latest harvest dates for different regions of Nebraska are given in Table 1. Suggested planting schedules of bush beans for peak harvest every 6 days for different regions of the state are given in Table 2.

Table 1. Earliest and latest planting and harvest dates of snap beans.

	Planting		*Harvest*	
Region	*Earliest*	*Latest*	*Earliest*	*Latest*
East	April 30	Aug. 6	July 7	Oct. 10
Central	May 5	Aug. 2	July 13	Sept. 24
West	May 18	July 21	July 29	Sept. 28

Table 2. Suggested planting schedule for bush-type snap beans for different regions.

Planting	*Planting Date*	*Estimated Harvest Date*
	EASTERN NEBRASKA	
1	April 30	July 8
2	May 17	July 14
3	May 27	July 20
4	June 5	July 26
5	June 13	Aug. 1
6	June 20	Aug. 7
7	June 27	Aug. 13
8	July 2	Aug. 19
9	July 7	Aug. 25
10	July 13	Aug. 31
11	July 18	Sept. 6
12	July 22	Sept. 12
13	July 26	Sept. 18

Table 2. (continued)

Planting	*Planting Date*	*Estimated Harvest Date*
14	July 29	Sept. 24
15	Aug. 1	Sept. 30
16	Aug. 3	Oct. 6
	CENTRAL NEBRASKA	
1	May 5	July 13
2	May 22	July 19
3	June 1	July 25
4	June 10	July 31
5	June 17	Aug. 6
6	June 23	Aug. 12
7	June 31	Aug. 18
8	July 6	Aug. 24
9	July 11	Aug. 30
10	July 16	Sept. 5
11	July 20	Sept. 11
12	July 24	Sept. 17
13	July 27	Sept. 23
	WESTERN NEBRASKA	
1	May 18	July 29
2	June 2	Aug. 4
3	June 11	Aug. 10
4	June 19	Aug. 16
5	June 25	Aug. 22
6	June 30	Aug. 28
7	July 5	Sept. 3
8	July 9	Sept. 9
9	July 13	Sept. 15
10	July 16	Sept. 21

Use these schedules to provide a continuous supply of high quality snap beans throughout the entire season, to have fresh beans available for a special occasion (guest, agricultural fair, etc.) or to avoid having beans ready for harvest during a period of absence (vacation).

For example, a gardener in eastern Nebraska wishing to enter snap beans for exhibit at the State Fair the first week in September should plant during the middle of July. A gardener in western Nebraska planning a vacation Aug. 1-14 should not plant snap beans during the first two weeks in June.

Planting and harvest date estimates are based on normal weather conditions. Snap bean harvest may be delayed during cooler than normal seasons or may be earlier during warmer than normal seasons. The latest planting in Table 2 may be damaged by frost about 2 years in 10.

Snap beans harvested in mid July (mid to late May plantings) in eastern Nebraska and in late July (later May and early June plantings) in western Nebraska do not yield as well during other harvest dates unless special care is taken to see that they have adequate soil moisture during flowering. Late June and early July plantings in eastern Nebraska usually produce the highest yields. These planting and harvest times are best when snap beans are grown for home canning or freezing.

Weed Control

Proper seed bed preparation and timely cultivation are the best ways to prevent potential weed problems. Hoeing and cultivating are preferred methods for controlling weeds in small gardens. Weeds are easiest to control when small. Cultivate shallow to avoid damaging the bean's root system. Several effective herbicides are available for use in larger plantings. Some suggested herbicides to apply before planting are:

Chlorpropham (CIPC) at a rate of 6 tablespoons per 1000 square feet.

Eptam (EPTC) at a rate of 3 tablespoons per 1000 square feet. Incorporate into the soil immediately after application.

Dacthal WP-75* (DCPA) at a rate of 8 to 10 tablespoons (WP-75) per 1000 square feet. Use the higher rate on heavy soils.

*WP-75 = 75% wettable powder.

Irrigation

Snap beans do not require a large amount of water but should have a constant supply for high quality and yield. One inch of water per week as rainfall or irrigation is enough on most soils if

temperatures are not high. However, adequate moisture is particularly important from bud formation to harvest. One and one half inches per week may be required if hot weather occurs during this critical growing period.

Sandy textured soils have lower moisture holding capacities. If the soil is dry at planting, ¼ to ½ inch of water helps assure prompt uniform germination. Sandy soils should receive 1 inch of water every 5 days until bud formation and 1¼ inches every 5 days from bud formation until harvest.

Pest Control

1. **Diseases**—Root rot, watery soft mold and bacterial blight are common bean diseases. Root rots are caused by soil organisms that produce gray, brown, black or even bright red lesions on the stem below the soil level and roots of the beans. Plants become stunted and yellow and may die if the disease is severe.

Sclerotinia sclerotiorum is the name of the fungus causing watery soft rot on stems, leaves and pods. These spots enlarge rapidly under cool moist conditions. Infected pods may become a watery mass. Infected spots grow into a white mass of mold a day or two after infection.

Halo blight and common blight are caused by bacteria respectively named *Pseudomonos phaseoli* and *Zanthomonus phaseoli.* These blights first appear as soft water-soaked spots on leaves, stems and pods. They grow larger, become brown or reddish-brown and may cause every leaf on the plant to die and fall off. Warm temperatures favor common blight. Under the cool conditions favoring halo blight it may be distinguished by halo like greenish-yellow areas caused by a toxin produced in the lesion.

Diseases of snap beans are difficult to control and are best prevented by rotating crops and by using only disease free seed. Do not plant snap beans in the same area of the garden more than once every 5 years.

Buying seed from vegetable seed companies and dealers is still the best insurance against bacterial diseases. Under proper conditions for development, one seed in a pound is sufficient to cause a bacterial blight epidemic. High humidity favors development of bacterial diseases. Driving rain or cultivating or harvesting when plants are wet favor its spread. Avoid working among beans when foliage is wet.

2. Insects—Leafhoppers, bean-leaf beetles, aphids and spider mites are some insects that may attack snap beans. Spraying with Malathion, (4 tablespoons if 25% wettable powder, 2 tablespoons if 50% wettable powder or 1½ teaspoons if 50% emulsifiable concentrate per gallon of water) is a single suggested control measure to be used if these insects appear.

If leaf-hoppers or bean-leaf beetles persist or reoccur, use 2 tablespoons of Sevin 50% wettable powder per gallon. If spider mites or aphids persist or reoccur, use 2 teaspoons of 25% emulsifiable Diazinon.

Harvesting

Snap beans are usually ready for harvest 7 to 10 days from blossom. Pick them before the pods are fully grown and the seeds are small. The plants may be repeatedly harvested by removing only the largest, oldest lower pods when they are about 4 to 6 inches long (5 to 7 inches for pole beans). This method requires more labor but produces greater yields. A second method involves a single harvest of pulling the plants after 40 to 70% of the pods are at least 5" long, then removing the pods from the plant.

The quality of snap beans is best if they are cooked or preserved immediately after harvest. However, they may be kept 3 to 7 days if washed in cold water and placed in the refrigerator. If held too long and/or at too low temperature (below 40°F.) the pods will begin to roughen. If held at temperatures above 50° F. for more than 5 to 7 days they begin to decay.