

Snap Beans

Introduction

The snap bean or green bean (*Phaseolus vulgaris*) is a warm season crop harvested for its immature seed pods. Prior to the development of the stringless bean in the 1890s, snap beans were referred to as “string beans” because of the fiber or “string” running along the pod seam. While stringless beans are more common today, many consumers still prefer the flavor of the stringed types.

Marketing

Farm fresh snap bean sales at farmers markets account for much of Kentucky’s commercial acreage. Significant sales are also made to produce wholesalers and at produce auctions. Other fresh market options include U-pick, community supported agriculture (CSA) subscriptions, and roadside stands. Sales to locally owned retail markets are also an option.

Market Outlook

About one-fourth of all snap beans produced in the U.S. are for fresh use; the rest are processed by canning or freezing. Fresh market snap bean use increased during the early 2000s to exceed 2 pounds per capita before declining to 1.6 pounds in 2010.

Fresh snap beans are a mainstay for direct vegetable marketing. Consumer familiarity with the crop, a greater emphasis on the health benefits of eating fresh produce, and sales to ethnic markets help keep



fresh snap bean sales strong or growing. Good market opportunities exist for producers growing heirloom or specialty beans as well.

Production Considerations

Cultivar selection

Snap beans are either pole (runner and half-runner) or bush types. Bush beans form compact plants 1 to 2 feet in height, while pole beans produce vines that may reach 8 to 10 feet in length. Half-runners have a growth habit between bush and runner, producing vines averaging 3 feet long. Typically, pole beans set pods over a longer period of time than bush beans. Pods of either type may have strings or be stringless; they may be round or flat in shape. While green is the most common color, pods may be yellow (wax beans), purple, or streaked.

Commercial growers should select only adapted varieties that have the qualities in demand for the intended market. Consideration should be given to regional

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preferences, as well as whether to grow heirloom cultivars, such as greasy beans. To reduce the possibility of seed-borne diseases, purchase western-produced seed.

Site selection and planting

Snap beans grow best in well-drained soils with good water-holding capacity. They are sensitive to cold and even a slight frost can cause damage. For this reason, the first planting of beans should not be made until after the danger of the last killing frost in spring. Growers planning to mechanically harvest bush beans should plant varieties that produce a concentrated set of pods. Successive plantings every 2 to 3 weeks are desirable for fresh market sales.

Seeding rates are partly determined by variety; small-seeded varieties require fewer pounds per acre than large-seeded varieties. The average amount of seed to plant is about 80 pounds per acre. Seeds treated with fungicides and insecticides are recommended to improve germination. Pole beans will require the construction of a trellis for support before the plants begin to produce runners.

Snap beans need a continuous supply of moisture, especially during pod set and pod development. Some growers have reported extremely high yields and a cleaner harvest growing bush beans in raised beds with black plastic and drip irrigation. This has also been the case with trellised beans.

Pest management

Potential bean disease problems include seed rots, damping-off, bacterial blights, rust, anthracnose, and viruses. Following good cultural practices, growing resistant varieties when available, and purchasing western-grown treated seed can help in disease prevention. Fungicide/bactericide sprays may be needed in some years. Aphids, Mexican bean beetle, spider mites, and leafhoppers can cause losses if not controlled. Scouting to monitor populations can help the grower determine when and how

often insecticides should be applied. Herbicides, cultivation, and a good rotation system can help control weeds.

Harvest

Snap beans are harvested at the optimum edible maturity stage when the seeds are about one-third developed. Half-runner and some other pole beans are harvested when the seeds are more developed. Many bush beans are mechanically harvested (once-over harvest). A pole bean crop is harvested an average of five times with each harvest three to five days apart. Beans for the fresh wholesale market are packed in bushel baskets or cartons.

Labor requirements

Labor needs for bush bean production are approximately 15 to 20 hours per acre plus an additional 8 hours per acre if irrigated. Machine harvested bush beans require from 3 to 20 hours per acre for harvesting, grading, and packing operations. Labor requirements are dependent on the scale of operation and the size of the specialized harvesting and packing equipment used. Hand-harvested beans are labor-intensive and can require up to 300 hours per acre.

Economic Considerations

Initial investments include land preparation, purchase of seed, and installation of an irrigation system. Additional expenses can include black plastic mulch and trellises. Beans grown for long-distance wholesale markets require an additional, significant investment into specialized harvest, grading, cooling, packing, and cold storage equipment.

Estimated 2010 production costs for irrigated, wholesale bush snap beans are as follows:

	HAND- HARVESTED	MACHINE- HARVESTED
Variable costs	\$4,880	\$1,589
Fixed costs	\$ 385	\$ 110
Total costs	\$5,265	\$1,699

Since returns vary depending on actual yields and market prices, the following per acre returns to land and management estimates are based on three different scenarios for wholesale snap beans. Conservative estimates represent the University of Kentucky's statewide average cost and return estimates. Profits should be considerably higher for local farmers markets or roadside sales. In addition, specialty beans can command higher prices and result in returns well above these estimates.

HAND-HARVESTED

<i>Pessimistic</i>	<i>Conservative</i>	<i>Optimistic</i>
\$60	\$595	\$1,675

MACHINE-HARVESTED

<i>Pessimistic</i>	<i>Conservative</i>	<i>Optimistic</i>
\$605	\$1,300	\$1,665

A 2006 University of Kentucky Agricultural Economics feasibility study on large scale (1,000 or more acres) mechanized snap bean production estimated that bean production amounted to 40 percent of the total breakeven costs. The other 60 percent of the costs were associated with the harvest and post-harvest handling that is needed to process and package the beans for fresh market sales. Hand harvest is most feasible when beans are being direct-marketed or sold above wholesale prices.

Large scale fresh market snap bean production is a specialized business with a few, mostly east coast, producers involved. Profits are dependent

on short term price upswings that occur at irregular intervals. Strategies to stay in the market place as long as possible are important to profitability. Large-scale snap bean production may be profitable, but only for the few who can access volume produce customers and can make a significant investment in specialized equipment. In addition, "deep pockets" are needed to endure periods of low or breakeven prices.

Selected Resources

- Vegetable Production Guide for Commercial Growers, ID-36 (University of Kentucky) <http://www.ca.uky.edu/agc/pubs/id/id36/id36.htm>
- Commercial Snap Bean Production in Georgia (University of Georgia, 2010) http://www.caes.uga.edu/publications/pubDetail.cfm?pk_id=7881
- Heirloom Beans (Sustainable Mountain Agriculture Center, Inc., 1998) <http://www.heirlooms.org/beans.html>
- Pole Bean Production, HIL-3A (North Carolina State University, 2005) <http://www.ces.ncsu.edu/depts/hort/hil/pdf/hil-3-a.pdf>
- Snap Beans Budget – for fresh market, machine harvested, irrigated (North Carolina State University, 2002) <http://legacy.ncsu.edu/classes/are201005/budgets/pdf02/bnmh942a.pdf>
- Snap Beans Budget – fresh market, machine harvested, irrigated (Clemson Extension, 2009) <http://cherokee.agecon.clemson.edu/snapbn6.pdf>

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