



Snap Beans

Cheryl Kaiser¹ and Matt Ernst²

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, produce auctions, and roadside stands. Sales to locally owned retail markets and restaurants 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 ranged between 1.5 and 2 pounds per capita between 2008 and 2016. That amount edged up slightly in both 2015 and 2016, when USDA estimated fresh snap bean use at 1.7 pounds per person.

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 also exist for



producers growing heirloom or specialty varieties.

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



www.uky.edu/CCD

¹Cheryl Kaiser is a former Extension Associate with the Center for Crop Diversification.

²Matt Ernst is an independent contractor with the Center for Crop Diversification.

to regional 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 two to three weeks are desirable for fresh market sales.

Seeding rates are partly determined by variety, with small-seeded varieties requiring 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 sometimes 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 eight hours per acre if irrigated. Machine harvested bush beans can require from 20 to 50 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. Profits from large-scale snap bean production are more likely to be realized by established producers who stay in the marketplace year after year, capturing the seasonal price swings that generate longer-term profitability from fresh snap beans.

Production costs (2017) for non-irrigated snap bean production are estimated at \$765 per acre, with harvest and marketing costs at \$1,415. Total costs per acre, including fixed costs, were approximately \$2,390. Production of 150 bushels sold at \$20 per bushel would return approximately \$380 to operator labor, land, capital and management.

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 for machine-harvested production. Prices per bushel for pessimistic, conservative and optimistic scenarios were assumed to be \$16, \$20 and \$30, respectively.

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.

<i>Pessimistic</i> \$(150)	<i>Conservative</i> \$380	<i>Optimistic</i> \$1,710
-------------------------------	------------------------------	------------------------------

A 2017 estimate for small-scale snap bean production indicates good profit potential for direct marketed snap beans, especially varieties sold at premium prices. Producers have reported prices up to \$40 per bushel for heirloom and specialty bean varieties. The estimate assumes a trickle-irrigated, 100-foot row, with hand harvest, retailed at \$2.50 per pound. The row resulted in a \$100 return to operator labor, land and management.

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://extension.uga.edu/publications/detail.html?number=B1369>

- Heirloom Beans (Sustainable Mountain Agriculture Center, Inc., 1998) <http://www.heirlooms.org/heirloom-beans.html>
- Pole Bean Production (North Carolina State University, 2005) <https://content.ces.ncsu.edu/pole-bean-production>
- Snap Beans Budget – fresh market, machine harvested, irrigated (Clemson, 2016) <http://www.clemson.edu/extension/agribusiness/files/enterprise-budgets/snapbeans-irr.pdf>
- Snap Bean Production (Penn State University, 2017) <https://extension.psu.edu/snap-bean-production>
- Traditional Vegetables 2015 Planning Budgets (Mississippi State University) <http://agecon.msstate.edu/whatwedo/budgets/docs/MSUVEG15.pdf>

Suggested Citation:

Kaiser, C. and M. Ernst. (2017). *Snap Beans*. CCD-CP-118. Lexington, KY: Center for Crop Diversification, University of Kentucky College of Agriculture, Food and Environment. Available: <http://www.uky.edu/ccd/sites/www.uky.edu/ccd/files/snapbeans.pdf>

Reviewed by Brent Rowell, UK Extension Professor, International & Sustainable Agriculture
Photo courtesy of Pixabay.com

October 2017

For additional information, contact your local [County Extension](#) agent

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, or physical or mental disability.