

# Growing, Harvesting, Preserving Appalachian Heirloom Beans

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## What are heirloom beans?

Beans have been grown in central Appalachia for almost 900 years, first by Native Americans and later by early settlers. Today, across Appalachia, beans are widely grown as a garden crop used as fresh snap green beans, shelled beans or dry beans. Heirloom, or heritage, varieties are typically saved and grown by families or communities for many generations. These beans are diverse and include cornfield beans, also known as pole beans, cut short beans that are packed tightly in the pod, greasy beans that lack hairs on the pod and look shiny, pink tips, fall beans, wax beans and butter beans. Heirloom beans have unique seed and pod colors with interesting historical or descriptive names such as ‘Logan Giant,’ ‘Fat Man,’ ‘Cranberry,’ ‘Goose’ and ‘Turkey Craw.’ The vast majority of heritage beans are vining or runner-types requiring trellising or vine support. Heirloom dry or fresh-shelled beans can be bush or vining types. Pole beans and half-runner beans are the most widely planted heirloom beans and are considered cornfield beans. Traditionally, runner type beans were intercropped with corn to conserve space with the corn stalk providing a trellis for the beans and the beans providing some nitrogen to the growing corn crop. Compared with traditional bush green beans, heirloom beans have a denser flavor, higher marketable yield and more nutrition because they are also a source of protein due to the developed seed. For this reason, heirloom beans are an excellent source of plant-based protein and fiber and should be grown in gardens and available as a commercial product.

## How are heirloom beans grown?

A soil test should be performed prior to



**Figure 1.** Appalachian heirloom beans are easy to grow, produce an abundance of food and should be preserved for future generations. ‘Fat Horse’ pole bean (left); ‘Coal Camp’ pole bean (above).

planting. Beans will grow best on well-drained soil with a pH of 5.8-6.5. Nutrients such as phosphorus and potassium can be applied at or before planting if required. Beans are in the legume family and can produce some of their own nitrogen, so it is important not to overapply nitrogen either as an organic (e.g., compost) or synthetic (e.g., 10-10-10) fertilizer. Heirloom beans are self-pollinated, and

the seed can be saved each year for the next planting season, unlike hybrids, which don't come true to type. Beans should be rotated with vegetables botanically unrelated to beans or peas for at least two years before planting legumes in the same area to limit disease and insect issues.

Seeds are sown 1" deep 6" to 8" apart either in single rows or 12" to 18" apart on the bed in double rows. In the open field or garden, beans are planted beginning approximately one week after the last frost or when soil temperatures have reached 60 degrees F at an inch depth. Succession planting of beans can be planted three to four weeks apart through July in most regions of West Virginia. Heirloom beans can be established as transplants. Two seeds are sown per cell in a 50-cell (1- to 1.25-inch) tray or soil block. Approximately three to four weeks after sowing, the transplants are ready to plant on a slightly wider spacing of 1 foot between plugs either in a single row or twin row planting arrangement. Bush beans are excellent for a square foot garden with one bean plant per square, and vining types can also be planted on the north side of the square foot garden with a trellis to limit shading of other crops. Open field production is most common, but high tunnels are ideal for growing half-runner and bush-type heirlooms since the plants stay dry and disease pressure is minimized. High tunnels are passively vented, solar greenhouse structures, and are well suited to production of trellised, heirloom beans, particularly for early season production (Figure 2) where there is a price premium for early summer beans. Seeding or transplanting is done three to four weeks before the last frost date within a high tunnel.

Beans are fairly shallow rooted and thus are susceptible to drought stress, particularly during flowering. Plastic or organic mulch can be used to reduce weed



**Figure 2.** Heirloom beans can be grown in high tunnels for early season markets.

emergence and conserve soil moisture. Irrigation with either a soaker hose or drip irrigation may be needed in dry weather. Drip irrigation can be applied under the plastic between the rows, or if using organic mulch such as hay, the drip tube can be placed under the mulch.

Mulch can be also used to control soil temperature. Black mulch will warm the soil for early bean production and white-on-black plastic mulch or organic mulch in late summer or fall harvest can help cool the soil.

When interplanted with corn, beans are seeded three to four weeks after sowing the corn seed. In a square foot garden, beans can be intercropped with crops such as lettuce or green onions.

Popular heirloom half-runner bean varieties include 'Non-Tough,' Josephine Jackson,' 'Volunteer,' 'White (and Brown) Half-Runner,' 'Blue-Tip' and 'Mountaineer,' to name a few. Popular pole bean varieties in West Virginia include 'Fat Man,' 'Fat Horse,' 'Logan Giant,' 'Rattlesnake,' 'Turkey Crow' and 'Coal Camp.'



**Figure 3.** Half-runner and pole beans can be harvested efficiently with a modified, slanted trellis design.

Half-runner and pole beans are trellised for maximum yield and ease of harvest since the vines can grow 9 or more feet. Several styles of trellises can be used for growing heirloom beans. The standard vertical or upright trellis using cattle panels, woven-wire fencing or netting is common. A teepee or maypole trellis can also be used. Another style of trellis being evaluated at West Virginia University is a slanted panel (single or double) trellis that improves light interception, resulting in higher yields and greater harvest efficiency of heirloom beans (Figure 3). The panels are 8 ft. x 8 ft. and are covered with twine or netting. Each trellis is angled 35 degrees, which facilitates harvest while improving light interception by the canopy.

Insect pests include cutworms, Mexican bean beetle, Japanese beetle and stink bugs. Regular scouting of the crop is essential to detect pest populations early. Many organic or OMRI-listed materials can be effective for suppressing pests before they spread.

### How are heirloom beans harvested?

Fresh heirloom green beans are ready to harvest about three to four weeks after the flower first appears. These types of green beans are harvested when the bean pod is thicker than a pencil and can look lumpy with good size beans in the pod. Even at this level of maturity, heirloom beans are known for how tender their pods remain. The time to maturity can vary greatly for the many different varieties of heirloom green beans, with some maturing in as little as three weeks and some taking five weeks to mature from the flowering stage. For fresh green beans, the whole pod is harvested by snapping it from the plant gently so smaller, immature beans and flowers are left on the vine. Most pole and half-runner varieties can be harvested for seven to 10 weeks and should be harvested two to three times per week. Yields of ½-pound per plant are common.

Dry or fresh shell beans are harvested after the bean has fully developed in the pod, and the pod is removed (shelled) from the bean either by hand or with a mechanical sheller. Fresh shell or “shelly beans” are harvested when the pod is full but not completely dry, while dry beans are harvested after the pod and bean has thoroughly dried either on the plant or in storage. Dry bean varieties such as ‘French Horticultural,’ ‘Cannellini’ and ‘Black Turtle’ can be hand-harvested if the planting is small (Figure 4). The entire bean plant can be uprooted and the beans removed from the



**Figure 4.** Heirloom dry bush or pole beans can be once-over harvested (below) and shelled when the pods have thoroughly dried.



plant for later shelling if desired. Fresh shell beans such as horticultural beans or butter beans are harvested just as the bean develops full size, making the pod plump. Fresh shell beans have pods that are not completely dry, so they must be shelled from the pods by hand or with a shelling machine. Immediately after shelling the beans are refrigerated, frozen or canned. Always harvest beans from vines or pods that are not wet from dew or rain to limit disease spread. Green



## **Slow-Cooked Appalachian-Style Heirloom Beans:**

- Wash beans thoroughly
- Tip, string, snap beans
- Place beans in a cooking pot
- Add bacon drippings or cured ham to pot
- Add water to top of beans in the pot
- Add salt
- Bring to full boil at high heat uncovered
- Reduce heat to medium and place lid over pot
- Simmer at medium heat for approximately two hours. Taste beans for texture and flavor until ready to eat.

**Figure 5.** There are many ways to prepare heirloom beans. Consult your local Extension Office for more recipe ideas.

beans with moisture on the pods do not store well in the refrigerator. Dry beans should be below 18% seed moisture for storage in a cool, dry area until consumed or marketed.

After heritage green beans are harvested from the garden, they should immediately be placed in a plastic bag or container in a refrigerator. When harvesting for commercial production, placing the beans in a shaded area or walk-in cooler until market is recommended. Beans can be hydrocooled after harvest with cold water to remove field heat before placing in a cooler, but it is best to store fresh beans that are not wet. The ideal temperature for storing fresh green beans is 45-50 degrees F.

### **How are heirloom beans processed and preserved?**

For home consumption, the beans should be washed, tip removed, and the tough fibrous “string” removed before snapping them into smaller pieces. Removal of the fibrous string is referred to as stringing beans and is one of the most noticeable differences between heirloom beans and modern hybrid beans. The modern hybrids do not have this tough string. There are many ways heirloom beans can be processed and preserved. The unique quality of heirloom beans is that they are a locally grown food source and can be eaten or preserved immediately after being harvested from the garden or purchased from a grower. One pound of fresh green beans will provide about three servings. Beans are a slow-cooked food and can be easily pre-

pared for any meal. Fresh green beans can be slow cooked “country-style” or quickly blanched and flavored with many seasonings (Figure 5). In addition, beans can be steamed, stir fried, added to soups and stews and even pickled.

Canning and freezing are common ways to preserve fresh green beans as well as fresh shelled beans. Freezing heirloom beans preserves color and nutrition. The beans are cleaned, strung and snapped into smaller pieces. The beans are blanched for three minutes and frozen on flat sheets before being placed in vacuum-sealed plastic bags. Shuck or Shucky beans, “fodder beans” or “leather britches” are green beans that have had their strings removed and dried using dehydration. Methods for drying include commercial dehydrators, being strung with thread through the pods and hung up in a warm, dry place after harvest during the late summer and fall season, or even placing the beans on window screens and drying them in greenhouses or old cars. These beans can be eaten after rehydrating and cooking, or can be added to soups and stews. For more information on preserving beans, visit the WVU Extension website at <https://extension.wvu.edu/food-health/home-food-preservation/freezing>.

### **How are heirloom beans marketed?**

Heirloom beans can be marketed to consumers at farmers markets, roadside stands or CSA markets throughout the year. Beans are sold prepackaged as pre-strung beans in 1-pound or 3-pound perforated bags (Figure 6). Heirloom beans can also be sold in



**Figure 6.** Heirloom beans can be packaged in small, perforated bags, sold in larger quantities, or frozen for off-season sales.

larger quantities such as bushels if there is demand for that volume. There is emerging potential for U-Pick green beans in many regions of Appalachia, particularly using the modified trellis as designed and evaluated by WVU. Dry beans are packaged in 1- to 1.5-lb. bags for sale in the fall through winter season. If farms have access to a certified kitchen, beans can be sold strung and snapped in packages or as frozen heirloom beans. Ready-to-eat, frozen beans can be sold to customers throughout the off-season or food service clients such as restaurants, hospitals or schools.

**How are heirloom bean seeds saved?**

Preserving heirloom beans for future generations is very important. Heirloom beans are self-pollinated, and thus the seed can be saved for planting the following season. Bean flowers are highly self-fertile and normally pollinate before the blossoms open. That being

said it is good practice to separate most bean varieties in the garden by 10 feet at a minimum. For some varieties, like the ‘Goose’ bean, there is a need for greater distances of separation to keep the beans from crossing. In high tunnels or greenhouses, different varieties of beans for seed can be grown in closer proximity because there won’t be the insects or wind that might create cross pollination occurrences. In addition, high tunnels are excellent for growing and harvesting bean seed since the pods stay dry and rarely shatter. One method for saving beans from heirloom varieties is to harvest some of the beans for fresh consumption and allow the remainder of the crop to mature and dry on the vine as a seed crop. Seeds should be allowed to dry in the pod, but if weather is rainy, they can be harvested mature (pod yellow to brown) and dried inside. Cut short beans are harvested as soon as the pod dries, as they will shatter easily after the pods get dry. After

the seeds are dried, they can be placed in plastic bags or paper envelopes. Label the bags or envelopes with the variety and date it was saved. Bean seeds can be stored in a refrigerator or freezer until planting and may stay viable for several years.

### Where can heirloom beans be found?

There are many dedicated seed savers across Appalachia. Seed libraries and seed swaps are becoming more popular in Appalachia. Seed libraries often serve as local depositories of heirloom seeds, and seed swaps are common at many sustainable agriculture conferences. A few commercial seed companies may be a source for heirloom beans. Online sources where people can order heirlooms are becoming more common as well.

### Suggested Citation:

Jett, L. (2021). *Growing, Harvesting and Preserving Appalachian Heirloom Beans*. CCD-WVU-FS-2, ANR-HORT-21-001. 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/appalachian\\_heirloom\\_beans.pdf](http://www.uky.edu/ccd/sites/www.uky.edu/ccd/files/appalachian_heirloom_beans.pdf)

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This publication is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, through the Northeast Sustainable Agriculture Research and Education program under subaward number ONE19-338, “Preserving the Past for the Future: Evaluating Production, Processing and Marketing of Appalachian Heritage Beans.”



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ANR-HORT-21-001

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*Photos courtesy of Lewis Jett*

**February 2021**

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