

Growing Snap Beans in West Virginia

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Snap beans (*Phaseolus vulgaris*) are a popular summer garden vegetable grown throughout West Virginia that are highly nutritious, with abundant dietary fiber and vitamin C.



Figure 1. Snap beans are a popular vegetable among West Virginia's gardeners.

Types of snap beans

Snap beans can have several types of growth habits including bush, semi-vining and vining. Bush varieties have a concentrated set of beans and do not require trellising. Semi-vining types include half-runner beans which are popular in many regions of West Virginia, primarily for their canning quality and high marketable yields. While semi-vining beans do not require trellising, a support for vine growth will increase yield and make harvesting easier. Pole beans are vining and require a trellis for growth, making them easy to grow in limited space since they are amenable to vertical trellising.

There are several types of snap beans including round-pod, flat-pod (Romano), wax and filet. Many snap beans are harvested as round pod types, but there is a market for flat pod and filet beans. Filet beans are very tender, young beans (1/8 inch diameter) without any strings. There are several varieties of filet beans which perform well in West Virginia (Table 1).

Planting snap beans

Beans should be planted in soils with a pH of 6.0 - 6.8. If the soil has greater than 3% organic matter following a clover cover crop, no nitrogen is needed. For soils with less than 3% organic matter, 40-60 pounds of nitrogen per acre is needed. No sidedress nitrogen is needed unless there is excessive rainfall during the growing season, which can leach fertilizer nutrients. Based on a recent soil test, up to 100 pounds of P₂O₅ and K₂O can be applied.

Snap beans are tender vegetables and should be planted after all danger of frost has passed. Beans require a soil temperature at the 1-inch depth of at least 60°F for optimal germination. Beans are planted approximately 1 inch deep, with approximately 5-7 seeds per foot with rows spaced 30-36 inches apart. Pole beans are seeded 6 inches apart. Planting too deep will reduce emergence, and planting too early will result in reduced germination due to cool soils. One pound of seed will be enough to plant 100 feet of row (or use 70-100 pounds of seed per acre).

Beans can be planted on bare soil or into plastic mulch, which suppresses weed emergence, prevents soil moisture evaporation and accelerates germination (Figure 2). Black, embossed plastic mulch is used, and two rows are planted 18 inches apart on a 36-42 inch-wide bed. A single line of drip tube is placed on each bed with a medium flow rate to provide water throughout the growing season. For an early harvest, green beans can be planted within a high tunnel which will help protect the tender plants from temperature fluctuations (Figure 3a).



Figure 2. Green beans can be planted into black plastic mulch for early harvest.

For a continuous supply of green beans over the summer and fall, stagger planting every 2-4 weeks. To harvest fall snap beans, seed in early August. Snap beans are sensitive to high temperatures and drought stress. When beans are exposed to high temperatures during flowering, the flowers will abort or fall off the plant (Figure 3b).

Harvesting snap beans

Snap beans are harvested approximately 14 days after flowering. An even supply of water during flowering through pod set is critical for good yields. Beans should be picked before the seeds get too large and the pods too tough. Filet beans are harvested every 3-5 days once the pods are 1/8 to 1/4 inches in diameter.

Picking in late evening during low field heat will improve post-harvest shelf life. Avoid picking beans after a rain or heavy dew when the foliage and beans are wet. Bush beans tend to have a concentrated set of beans that can be mechanically harvested, while half-runner and pole beans are harvested repeatedly through the season. To remove field heat, beans can be hydrocooled in cool water and stored at 38-42°F for optimal quality. A good yield of green beans is approximately 150 bushels/acre or 2.5 tons/acre (Figure 3c).



Figure 3(a) Snap beans can be grown within a high tunnel for early season production. (b) Snap bean flowers will drop from the plant if exposed to high temperatures and drought. (c) A good yield of green beans is approximately 150 bushels/acre.



Table 1. Marketable yield of green bean varieties in West Virginia (2009 and 2014).

Cultivar	Days to harvest	Type	Marketable yield (lb/10 ft row)	Disease resistance ^z	Comments
Boone	58	Bush	2.6	BMV, R, CB	Very dark green pods
Bronco	58	Bush	2.5		Market shipping variety
Caprice	56	Bush	-	BMV; CB	High quality and uniform size.
Crockett	58	Bush	2.0	BMV, R, CB	Excellent quality
Jade II	60	Bush	3.9	BMV, R	Excellent color and yield
Lewis	53	Bush	2.3	BMV; R	Excellent color and yield
Prevail	54	Bush	3.0	BMV	Very dark green pods
Strike	53	Bush	3.3	BMV	High marketable yields
Valentino	56	Bush	3.7	R	Shipping variety
Goldtito	58	Filet	2.8		Baby yellow wax bean
Isar	52	Filet	1.3	A, BMV	Yellow filet bean
Ferrari	58	Filet	2.0	A, BMV	Dark green filet bean; erect plant
Maxibel	60	Filet	3.6	-	Excellent filet or <i>haricot vert</i> bean; stringless
Roma II	59	Romano	-	R; BMV	Flat pod with excellent flavor
Volunteer Half-runner	60	Half-Runner	1.9	R, BMV	Good disease resistance
Mountaineer Half-runner	60	Half-Runner	1.8	-	
State Half-runner	60	Half-Runner	3.1	-	High marketable yields

^zA=Anthracnose; BMV=Bean Mosaic Virus; CB=Common Blight; R=Rust

Pests of snap beans

Common bean insect pests in West Virginia include the Mexican bean beetle, corn earworm and mites. Diseases such as bean mosaic virus, anthracnose and bacterial blight are common. Mexican bean beetle larvae and adults feed on snap bean plants (Figure 4). If damage exceeds 20% of the foliage during pre-bloom or 10% during bloom, then treatments can be made. On small plantings, the beetles can be physically removed from the plants. Consult the *Commercial Vegetable Production Recommendations Guide* for further information on managing pests of snap beans.





Figure 4(a) Mexican bean beetle adult, and (b) its feeding injury to bean plants resulting in skeletonized leaves.

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