

# Commercial Blueberry Production in West Virginia

Lewis W. Jett, *WVU Extension Service Specialist – Commercial Horticulture Agriculture and Natural Resources*, West Virginia University Extension Service

*This fact sheet provides an overview of the basics of blueberry production in West Virginia. Included is information about site and variety selection, planting, fertilizing, pruning, pest management, and harvesting.*

## Blueberries are a good commercial choice

Blueberries (*Vaccinium sp.*) are an excellent commercial, small fruit crop for West Virginia growers. Blueberries are native to the Appalachian region and thrive on acidic, sloping land with abundant rainfall, high organic matter and cool summers. There are many types of blueberry plants; the northern high bush is the most common commercial type grown in the Mid-Atlantic region (Figure 1). Blueberries have very few pests to plague their growth and reduce marketable yields, which makes organic production a feasible option for many West Virginia growers. Blueberries also have a very high yield potential, with as much as 10 pounds of fruit harvested from mature plants. The fruit is extremely nutrient dense with very high levels of antioxidants. In fact, blueberries are considered one of the healthiest foods that people can eat.



*Figure 1. Blueberries, a native small fruit, have strong market potential.*

## Marketing

When available, blueberries are very popular at local farmers markets throughout West Virginia from June to September. Average price per pint typically ranges from \$2 to \$5. Blueberries are well-suited to U-Pick farms where customers can harvest fruits from June until mid-September. U-Pick prices range from \$1.50 to \$3 per pound, depending on the region of West Virginia. If properly managed, blueberries can produce marketable yields for at least 20 years.

– continued –

## Site selection and soil preparation

Blueberries are a perennial crop, so site selection is very important. Site preparation should begin at least a year before establishing the crop. A soil sample from the planting site should be taken the fall preceding the expected planting date. Four to 5-foot-wide strips can be tilled in the planting site and seeded with a summer or winter cover crop to increase organic matter. Blueberries grow well in soils with >3% organic matter on sloped land with good air and water drainage (Figure 2).



Figure 2. Site selection for blueberry production is important.

The root system of blueberries is extremely fine, and waterlogged soil will restrict growth. Since blueberries bloom in the spring, the flowers could be damaged by frost. Avoid south-facing slopes, which may induce early varieties to flower when there is a greater risk of frost. When choosing blueberries as a commercial crop, it is very important to choose soils having the correct pH. Blueberries grow best in acidic soil with a pH of 4.5 - 5.0. If the soil is not within this range (that is, too high), then steps must be taken a year in advance for lowering or adjusting the pH. Lowering the soil pH can be done with powdered or pelleted sulfur. Aluminum sulfate is not recommended for lowering the soil pH. The rate of sulfur application varies with soil type (Table 1). Do not apply more than 400 pounds of sulfur to the soil in any single application.

**Table 1.**  
Amount of sulfur  
required to lower  
the soil pH\*

Present pH	Target pH of Soil					
	4.5			5.0		
	Sand	Silt	Clay	Sand	Silt	Clay
	(lbs/acre)			(lbs/acre)		
4.5	0	0	0	—	—	—
5.0	175	520	610	0	0	0
5.5	350	1050	1130	175	520	610
6.0	520	1520	1610	350	1050	1130
6.5	650	2000	2090	520	1520	1610
7.0	830	2530	2610	650	2000	2090
7.5	1000	3010	3090	830	2530	2610

\*Source: 2010 Mid-Atlantic Berry Guide.

## Variety selection

There are many blueberry varieties that perform well in West Virginia. Generally speaking, choose a range of varieties including early, midseason, and late maturing varieties (Table 2). This combination of maturity provides fruit over a longer harvest period, which is especially important for U-Pick marketing.

A diversity of varieties ensures even production of fruit, and some varieties benefit from cross-pollination. For U-Pick farms, individual varieties should be planted in separate blocks so that customers will evenly harvest blueberries having similar maturity dates.

**Table 2.**  
**Recommended**  
**varieties of**  
**northern highbush**  
**blueberries for**  
**West Virginia**

<i>Varieties</i>	<i>Maturity</i>	<i>Description</i>
Aurora	Late-season	Ripens late; Spreading growth habit; Large berry size
Bluecrop	Mid-season	Best mid-season variety; Great flavor
Berkeley	Mid-season	Tall, open plant
Chandler	Mid-season (late)	Very large fruit; later than 'Bluecrop' Needs pruning to stimulate cane production.
Duke	Early	Later than 'Patriot'
Darrow	Midseason	Very large fruit
Jersey	Late	Late season; good flavor; Berries small to medium in size.
Patriot	Early	Good winter hardiness; large berry
Spartan	Early-Midseason	Blooms late; good flavor

## Pollinators

Many blueberry varieties benefit from cross-pollination with other varieties, so a diversity of varieties will increase marketable yield. Blueberries benefit from cross-pollination; so an abundance of diverse insect pollinators such as bumble bees, hornfaced bees, honey bees, and southeastern blueberry bees will increase fruit set and individual fruit weight.

## Planting

Plants are spaced approximately 5 to 6 feet between plants within the row and at least 10 feet between rows with approximately 800 plants per acre. Most high bush blueberries will grow to approximately 6 feet tall and 6 feet in diameter. A wider intra-row (between row) spacing will accommodate picking, mowing, and spraying activities. Several nurseries sell quality blueberry plants. A 2-year-old plant is the preferred size of planting stock.

The row middles or aisles are established as permanent sod. Since many blueberry plantings are on sloped ground, the sod reduces soil erosion as well as facilitates harvesting and spraying. A variety of vegetation can be used, including ryegrass, clovers, and buckwheat, but a low-growing grass that tolerates foot traffic such as hard fescue would be a suitable choice.

## Time

Blueberries can be planted in the spring or fall in most regions of West Virginia. In the spring, dormant plants are planted as soon as the soil can be tilled. Early to mid-October is a suitable time to plant blueberries if they could not be planted the previous spring.

## Soil growing media

Moistened sphagnum peat moss is mixed with soil in the planting hole at the rate of 1 gallon per plant. Also, aged sawdust or wood chips can be incorporated into the soil if available. Blueberries can be grown on plastic mulch or landscape fabric during the establishment year. The following year, the plastic mulch can be removed and replaced with an organic mulch such as sawdust, wood chips, or pine straw.

## Watering

After planting, the plants should be watered with drip irrigation or hand-watered.

## Mulching

Mulching is critical in conserving soil moisture for the growing blueberry plants.

Blueberries have extensive, fine hair roots that spread horizontally from the base of the plant. Thus, blueberries are sensitive to fluctuations in soil moisture. Mulching significantly reduces evaporation of soil moisture and suppresses any weeds that can compete with the growing blueberry plants (Figure 3). The preferred mulches for blueberries include sawdust, wood chips, chopped corncobs, and pine needles. Compost and leaves are not ideal mulches since some composts have relatively high pH, and leaves often pack and reduce water infiltration to the plants. Sawdust should be aged or composted before using it as the sole mulch for blueberries.

The mulch should be applied each fall around the plants 4 to 6 inches deep and 4 to 5 feet wide. The fine roots of the blueberry plants will grow into the mulch, making the mulch an expansion of the root zone for the plants.



*Figure 3. Mulching reduces soil moisture loss and weed growth and improves overall growth of blueberries.*

## Fertilization

Fertilizers should not be applied at planting since they could burn the young roots. Approximately two weeks after planting, when the young plants begin to sprout leaves, the first application of fertilizer can be applied. Ammonium sulfate (21%N) fertilizer at the rate of 50 lbs/acre can be applied when the soil pH is >5.0. Ammonium sulfate is a naturally acidic fertilizer and will help maintain the pH within the correct range for optimal growth. If the pH is < 5.0, urea (46%N) fertilizer is a good source of nitrogen for blueberries. An additional application of 25 to 30 lbs/acre of ammonium sulfate can be applied in early to late June.

## Pruning

This is approximately 0.5 to 1 ounce per plant per application applied as a ring around the plant approximately 6 inches from the base. The rate of ammonium sulfate can be increased to 1.5 to 2 ounces per plant twice each season in subsequent years. Avoid fertilizing plants in the fall with nitrogen because this could induce winter injury.

Blueberries are pruned annually approximately three years after planting. The first two years after planting, the flower buds are removed to encourage greater vegetative growth.

Pruning encourages new cane growth and prevents overproduction of fruit. Most fruit production is on the new canes. When blueberries overproduce, fruit size is decreased. Pruning opens the canopy up to more light, thus increasing yields (Figure 4).

Pruning methods vary with blueberry varieties. Some varieties produce a lot of canes near the center of the bush ('Bluecrop'), and others have a more spread-out growth habit ('Aurora'). Thus, varieties that tend to grow tight canes within the center need to have the older canes removed from the center of the bush. Generally speaking two or three of the oldest canes are removed each year. Detail pruning of the upper canopy removes branches growing too closely to each other. Also, any low-growing, diseased, or dead branches should be pruned (Figure 4).



*Figure 4. Pruning of blueberry bushes increases overall marketable yield. Remove old canes and other dead or diseased canes from each plant.*

## Pest management

Compared with other fruit crops, blueberries do not have many pests. Weed control is accomplished by mulching. Birds that flock and eat ripening fruit can be a serious problem. Bird netting suspended above the planting will be needed (Figure 5). Deer damage is usually caused by browsing on fruit buds in the fall/winter, so a perimeter deer fence may be needed. Fungal diseases such as Botrytis blight (*Botrytis cinerea*), Mummy berry (*Monilinia vacini-corymbosi*), and Phomopsis twig blight (*Phomopsis vaccini*) are the most common fungal diseases observed by West Virginia blueberry producers. For more information about these diseases and their management, consult the *Mid-Atlantic Berry Guide*.

## Fruit harvest and postharvest handling

## Sources of blueberry plants\*



Figure 5. Bird netting protects ripening fruit.

A mature blueberry plant can produce an average yield of 6 to 10 pounds (8 to 16 pints) of marketable fruit per season. The harvest season for blueberries extends from June through early September. Blueberry fruit turns blue in two to four days, but an additional five to seven days are needed for full flavor. Fruit that has attained full color and is easily detached from the plant should be harvested. Blueberries have a relatively good shelf life at room temperature, but they will keep for approximately 14 days when stored at 32°F and 95% relative humidity.

### **Daisy Farms**

28355 M-152  
Dowagiac, MI 49047  
269-782-6321

### **DeGrandchamp's Farm**

76241 14th Ave.  
South Haven, MI 49090  
888-483-7431

### **Fall Creek Farm and Nursery**

39318 Jasper-Lowell Rd.  
Lowell, OR 97452  
800-538-3001

### **Indiana Berry and Plant Co.**

5218 West 500 South  
Huntingsburg, IN 47542  
800-295-2226

### **Nourse Farms, Inc.**

41 River Rd.,  
South Deerfield, MA  
01373  
413-665-2658

*\*Listing of plant suppliers does not imply endorsement of those mentioned or exclusion of others not mentioned.*

Updated August 2012

For more information contact Lewis W. Jett, *WVU Extension Service Specialist – Commercial Horticulture* – [Lewis.Jett@mail.wvu.edu](mailto:Lewis.Jett@mail.wvu.edu)

[www.ext.wvu.edu](http://www.ext.wvu.edu)

*Programs and activities offered by the West Virginia University Extension Service are available to all persons without regard to race, color, sex, disability, religion, age, veteran status, political beliefs, sexual orientation, national origin, and marital or family status. Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Director, Cooperative Extension Service, West Virginia University.*

AG12-137