

BLUEBERRIES



Presented by



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BLUEBERRIES



This production summary provides an overview of growing, harvesting, and post harvesting practices. There are some common practices that many large commercial growers use when producing blueberries, and though there are variations in these practices, having an understanding of the most common methods used will be helpful when carrying out regulatory activities.

By the end of this summary, you will be able to:

1. Describe the differences among the varieties of commercially produced blueberries.
2. List the top blueberry producing regions in the U.S.
3. Identify common farming practices used in the production of blueberries.
4. Describe farming practices used in different blueberry growing regions.

INTRODUCTION

There are three commercially important species of blueberries that are native to the Eastern United States:

1. **“Highbush”**
2. **“Lowbush”** and
3. **“Rabbiteye”**



HIGHBUSH



LOWBUSH



RABBITEYE

Within each species, there are many cultivars or varieties. Blueberry cultivars are chosen based on production area temperature and the chilling requirements of different species. Chilling is the accumulated number of hours between 32° and 45°F necessary for flower buds to develop on a dormant plant.

Rabbiteye and highbush plants require fewer chilling hours to produce fruit and are well adapted to Florida and California’s moderate climate. Lowbush species are native wild blueberry plants; however, they are still managed intensively with production techniques. Highbush and lowbush species are the most common species grown for commercial production

so the rest of this summary will focus on these species. Most fresh market blueberries are from highbush plants and most processed blueberries are from lowbush plants.

The United States is the world’s largest producer of blueberries. They are also grown in Chile, Argentina, Colombia, and British Columbia. Blueberries are grown commercially in 38 states with Michigan leading production of cultivated blueberries in the U.S. Other top producing states include New York, New Jersey, North Carolina, Georgia, Florida, Mississippi, Indiana, California, Oregon, and Washington (Fig 1). Maine is the leading producer of “wild” lowbush blueberries. Highbush and lowbush blueberries are native to the Eastern United States.

Fresh blueberries are available year round to U.S. consumers due to regional growing areas in the U.S. and imports from other countries. North American blueberries are sold from

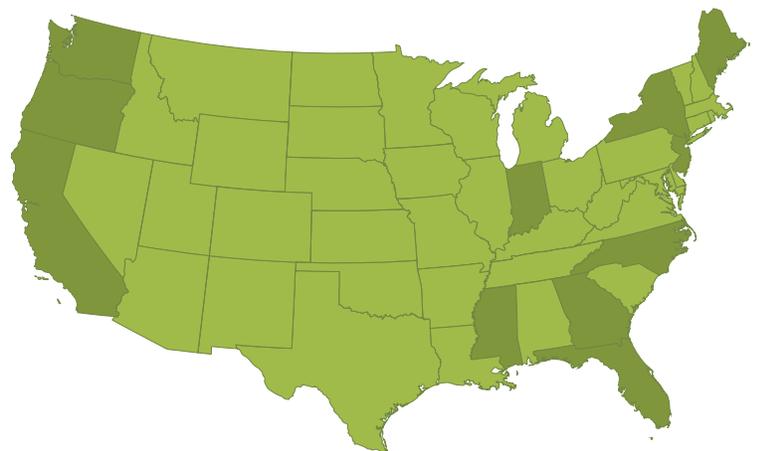


Fig 1 - Top Blueberry Producing States in the US

April through October, with the peak season from mid-June to mid-August. South American blueberries are imported from November through March.

GROWING

Blueberries require acidic soil with an optimal pH of 4.8. Nitrogen and ammonium sulfate fertilizers are used to increase soil acidity. Preparing a site for planting may take several years.

Blueberry bushes are perennials and most growers plant two-year-old bushes sourced from wholesale nurseries or propagated from their own cuttings. Fall planting is preferred and annual pruning is required. Some growers in the Southeast U.S. plant blueberries under polyethylene tunnels. This helps reduce damage during freezes and promotes higher yield and earlier fruit in the spring.



During spring, bushes produce white blossoms that are pollinated by bees. Each blossom will eventually become one blueberry, first hard and green, then reddish-purple, and finally, blue. Bushes will grow larger berries if they are cross-pollinated with a different variety. Growers will remove flowers and fruit for the first two to three years to promote vigorous bush growth. Eight to 12 years are usually required for blueberry plants to reach full size and greatest yield.

Most farms irrigate with overhead sprinklers, which are also used for spring frost protection. Above ground drip irrigation is less common and usually used on farms with limited water supplies. Some Midwest and Southeastern growers use surface water to irrigate their plants. In this case, microbiological testing of surface water is done to avoid bacterial contamination and spray irrigation is discontinued prior to harvest.

Insects and weeds are controlled by using high-pressure sprayers to deliver pre-season and post-season insecticides

and herbicides. Organic growers can use integrated pest management strategies including the addition of mulch or plastic coverings to aid in weed suppression.

HARVESTING

Harvest begins in the south and moves northward. Florida production starts in early April. The California harvest typically begins in early May and continues for about eight weeks.

Michigan's blueberry harvest usually runs from early July to mid-September.

Fresh market fruit is generally harvested by hand. This allows selection of ripe fruit with little bruising. Pickers carry five-quart collection buckets on their belts. When filled, the worker will empty the buckets or exchange it for empty buckets with a harvest supervisor.



Some growers conduct the first pick by hand for fresh market and later harvest by machine for either the fresh market or processed market depending on fruit condition and current market prices. Mechanical harvesters straddle the row shaking the bushes with mechanical fingers to remove ripe berries. The ripe berries fall into a catch frame and are conveyed into plastic field lugs that carry about 20 pounds of fruit. Fields that are machine harvested are usually harvested multiple times to retrieve all mature fruit.

PACKING

Within hours of picking, berries are transported by truck to a packinghouse. Containers of berries are loaded onto conveyors that carry the berries to blowers, which remove leaves, sticks, and underweight berries. Blueberries for the fresh market are air cleaned to remove debris. All berries are then graded and sorted. Fruit destined for the fresh market are packed in clear plastic clamshells.

Blueberries are typically cooled by forced air at 35°F. Forced air cooling is accomplished by placing a row of pallets next to an intake fan. A large tarp is placed over the pallets and the fan draws the refrigerated warehouse air through openings in the cardboard boxes and plastic clam shells. Cooling delays decay and prolongs shelf life.

Late season berries may be stored for several weeks in modified atmosphere chambers to capture higher prices at the end of the season. Cooled blueberries are shipped to markets in refrigerated trucks between 34° to 36°F.



CONCLUSION

Having a basic understanding of the way blueberries are grown, harvested, packaged, cooled, and held will provide the basic background information that will be helpful to regulators when completing inspections or investigations in the field.

The agricultural practices described in this production summary are common on most large commercial farms like those found in major blueberry producing regions in the United States. There are undoubtedly variations in these practices depending on the region, operation size, and individual grower preferences. This is especially true of farms outside of the U.S.

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