

## Blue Berry Production

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Several months ago, I wrote a column about the potential for wine grape production in the Mid-Columbia region as an alternative to producing tree fruits. Blueberries are another crop that have potential to provide pear and apple growers with an alternative to declining profitability. Harvested blueberry acreage in Oregon has increased nearly four-fold over the last fifteen years to keep pace with increasing demand.



Currently, Oregon ranks fifth and third in terms of blueberry acreage and production in the U. S. Oregon and Washington rank first and second in the U. S. for average per acre yield of northern highbush blueberries. This is one indication that blueberries are well adapted to the growing conditions of the Pacific Northwest. Although most of the Oregon blueberry acreage is located in the Willamette Valley, blueberry production is not new to the Mid-Columbia. There are several existing blueberry operations in the area. What is the potential for increased production here?

On May 24<sup>th</sup>, the OSU Extension Service sponsored a workshop in Hood River on blueberry production to provide local growers with an introduction to establishing and producing blueberries. Dr. Bernadine Strik, OSU Berry Crops Specialist, and other Oregon State University research and extension personnel covered the basics of blueberry production and economics. In this column, I have summarized some of the information presented during the workshop.

The three main types of cultivated blueberries in the U.S. are known as northern highbush, southern highbush, and rabbiteye blueberries. The northern highbush varieties are the most cold hardy and generally have the highest fruit quality. Consequently, northern highbush varieties are the most commonly produced in the northern U.S. and Canada. There are numerous northern highbush blueberry varieties currently available with wide ranging berry size, berry quality, and yield. The time of ripening varies from July to mid-September.

Blueberry plants grow as self-supporting bushes. The northern highbush varieties reach five to ten feet high and almost as wide at maturity. The bushes have unusual root systems, which lack root hairs typical of many crop plants. Instead they depend on a symbiotic association with a type of soil fungus known as mycorrhizae, which help the blueberry plant absorb water and nutrients from the soil.

Many local orchard soils have been adjusted to a pH of around 6 with the addition of lime. For good performance, blueberries require soil with a pH in the range of 4.5 to 5.5. Careful attention must be paid to measuring and adjusting the soil pH to this range before planting. In the Mid-Columbia area, this will usually require reducing the pH with the addition of elemental sulfur. This requirement for low soil pH is characteristic of many blueberry relatives including rhododendron and cranberry. It is possible to over acidify the soil, so monitoring pH is an ongoing routine for blueberry growers.

Blueberries do not require extremely deep soils. A soil depth of 18 to 24 inches is sufficient. The soil must, however, be well drained in order to avoid problems with root pathogens favored by poorly aerated soils. For this reason, blueberries are often grown on raised beds. While they do not tolerate

saturated soil conditions, blueberries are sensitive to water stress, especially during fruit development and ripening. Careful irrigation scheduling can help in avoiding the application of too little or too much water. Mulching is a common practice, which can help moderate soil temperatures and maintain soil moisture.

Blueberry production practices have changed over the years. Raised beds, closer in-row spacing, wider between row spacing, and trellising all facilitate higher production and mechanical harvesting. Although mechanical harvesting is on the increase, it is currently limited to fruit going to processing rather than fresh markets. Blueberries produced for fresh markets are almost exclusively hand harvested.

What about the economics of blueberry production? During the workshop, Clark Seavert, OSU Extension Service Agricultural Economist, compared the estimated cost of establishment and return on investment for blueberry production to those of pear and sweet cherry. Seavert estimated the per acre cost of establishment for blueberries to be approximately \$2,500 less than that of pears, with a 12 % greater return on investment for blueberries. According to Seavert, the cost of establishment for high-density blueberries is slightly less and the return on investment slightly higher than for high-density sweet cherries. He considers the expected 20 % return on investment for high-density blueberry plantings to be a reasonable return in relation to the risk.

From an economic standpoint, Seavert thinks that blueberries may be a good way for tree fruit growers to diversify. He points out, however, that there are additional important factors to consider. Primary among these are the need for a sound marketing plan. Also, if growers are considering producing for the fresh fruit market without the aid of mechanical harvesting, it is important to realize that blueberries have a higher requirement for picking labor, five pickers per acre compared to the estimated one half to three fourths for pears and one per acre for cherries. This is one way that the timing of blueberry operations and demands for labor must fit with ongoing farming activities.

For those wanting to find out more about blueberry production, I would suggest the following resources: Highbush Blueberry Production (PNW215), a complete guide to establishing and producing blueberries, is available at your local OSU or WSU Extension Service Office. The Northwest Berry and Grape Information Network, <http://osu.orst.edu/dept/infonet/>, which contains information on most aspects of blueberry production, is cooperatively produced by Oregon State University, Washington State University, University of Idaho, and the United States Department of Agriculture.

