

Growing Wild Lowbush Blueberries in Nova Scotia

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Introduction

The wild lowbush blueberry plant, *Vaccinium augustifolium*, is for the most part confined to northeastern North America. The principal commercial wild blueberry producing areas are Nova Scotia, Newfoundland, New Brunswick, Prince Edward Island, Quebec, and Maine. Maine is the largest producer representing up to 55 percent of production. Newfoundland is the smallest producer representing between one and two percent of North American production.

In Nova Scotia the wild lowbush blueberry has developed from humble beginnings into one of the provinces most important horticultural crops. The large scale commercial development of today had its beginnings in the late forties and early fifties. Since then, the industry has steadily expanded. Wild blueberries are the No. 1 fruit crop in the province in terms of total acreage, export sales and total value to the provincial economy.

Production

Production of wild blueberries differs in many significant ways from production of other fruit crops. The uniqueness of blueberry production is derived partly because the plant is a native naturally occurring plant in northeastern North America, and partly because of the biology of the species. Unlike other crops, wild blueberries are not planted but are developed instead from native existing stands. Since the harvested crop comes from fields composed of managed, native plants, these blueberries are marketed as "wild" blueberries. This is in contrast to the highbush or cultivated blueberry (*Vaccinium corymbosum*) which is planted and maintained in a manner similar to an orchard.

In established wild lowbush blueberry fields, modern agriculture management practices, such as weed and pest control, can produce a crop which can consistently yield 3,000 pounds per acre. Under favorable

conditions, yields of up to 8,000 pounds per acre have been realized.

The total production of wild blueberries in North America averages over 120 million pounds annually. Nova Scotia's average annual production is 30,000,000 lbs.

How the Plant Grows

Wild blueberries primarily spread by rhizomes or underground runners. These rhizomes give rise to new roots and stems. All shoots arising from the same rhizome system have similar characteristics and are referred to as a blueberry clone. In unmanaged fields, the rate of spread by rhizomes averages only 5 to 8 centimeters per year. Where competition from weeds has been reduced, rhizomes have been found to grow as much as 38 centimeters in one season. It is this relatively slow spread of the rhizomes which accounts for the long period of time required to bring a new field from initial clearing to full coverage.

As the rhizomes spread, new shoots are formed and emerge in early spring. These shoots are perennial; and unless subjected to pruning, they will continue to grow. During late summer and fall, buds develop on the shoot tips. These buds can be either flower buds or vegetative (leaf) buds. On new shoots, the ratio of flower buds to vegetative buds is greater as compared to two or three old shoots. In addition, the flower buds on new shoots are more winter hardy and produce more individual flowers. By taking advantage of this aspect of the biology of the plant, growers have been able to dramatically increase yields by pruning the fields on alternate years. This ensures that the fields are comprised of new shoots and thus have a high density of fruit-producing flowers.

Land Requirements

Abandoned farm land has the greatest potential for blueberry production because the land has been previously leveled and cleared of large rocks and trees; however, many productive fields have been developed from former woodland.

The prime requirement for blueberry land development is that the native lowbush blueberry is already present. Forest or scrub land with blueberry undergrowth can be successfully developed into productive fields. In general, the greater the initial density of blueberries, the shorter the time required to bring the field into production.

Land with Blueberry Potential



Click picture to enlarge

Wild blueberries grow well on sandy, well-drained acid soils. The optimum soil acidity level for blueberries is between 4.5 and 5.5. Although highly suitable for blueberries, soils with these levels of acidity are generally unsuitable for other types of agriculture.

Field Development and Management

Wild blueberry production can be divided into two distinct stages - initial development and management of existing fields.

Initial development may require removal of trees, stumps and rocks; construction of access roads and firebreaks; and specialized weed-control methods such as wiping or basal treatment of brush. In some cases, land leveling to accommodate farm machinery may be required. This stage may take from two to ten years depending on the level of input, initial density of blueberries, topography of the land and existing trees and weeds. During this period, the blueberry grower receives little if any income from the operation.

Field under Development



Click picture to enlarge

The second stage, management of existing fields, is a continuous operation involving weed control, pest control, pruning by mechanical methods or burning, ensuring pollination of the crop and occasionally applying fertilizer. There is no defined life span for a lowbush blueberry field. Once established, a field could continue to produce indefinitely if properly managed.

Initial development varies with the type of land and the existing trees and weeds. Blueberry fields can and have been developed from abandoned farmland, woodland, and brushland. The cost of development, production methods and length of time required to bring land into production vary considerably depending on the initial land type and the amount of plant cover.

The most cost effective and simplest land type to develop is abandoned farm land, where the blueberry plant has become established. Initial development may simply require pruning and an overall application of the appropriate herbicide. Often, scattered brush and shrubs are associated with this type of land. These require spot treatments with specific herbicides. If the density of blueberries is high enough, the field may be harvested the next year. Usually, four to six years is required before the grower can expect a reasonable harvest.

Woodland requires additional input to harvest the trees. This type of land sometimes requires land leveling to eliminate cradle hills. Stump removal is usually carried out three to five years after the trees have been harvested. If brush control is carried out immediately after the trees have been harvested, the amount of input required for this operation can be greatly reduced.

Although bringing a woodland area into blueberry production is more expensive, the grower can sometimes realize some return from the sale of the harvested trees.

Brushland is land which was harvested for forestry and has regrown with dense stands of brush and other weeds. To develop this type of land, brush has to be cut, piled, and burned. This operation can be labour intensive; although mechanical brush cutters may be used to reduce labour costs. Cut stumps must be treated to prevent regrowth. To allow mechanization (use of tractors with boom sprayers, flail mowers and mechanical harvesters) the large stumps must be removed.

In all cases, it is important to note that although initial development costs vary, the length of time required to bring a blueberry field into production is primarily dependent on the initial density of blueberry plants. Good management practices can increase the rate of spreading of the clones, reducing the length of time for initial development.

Once the initial development stage has been completed, the developed field is usually placed on a continuous two-year cycle of a vegetative year followed by a cropping year. It is a common practice to divide the fields so that half of the total acreage is harvested in any one year.

The first operation in the management cycle is pruning. As noted earlier, this procedure is required to increase flower and fruit formation. Pruning can be carried out either by flail mowing or by burning. Although mowing is less expensive than burning, burning plays a useful role in reducing populations of injurious pests.

Mowing



Click picture to enlarge

In early spring, after the fields have been pruned, a single application of a herbicide is usually required. Additional spot treatments of herbicide are sometimes required to control persistent weeds. Weed control is not only important in maximizing yields, but also encourages spreading of the blueberry clones. During the growing season, monitoring must be carried out to identify yield-reducing diseases and insects.

The following year (the "bearing" or "crop" year) the flower buds open and come into bloom. To ensure good fruit set, pollination by insects is required. Many growers supplement the native pollinators with commercial honeybee colonies.

As in the non-cropping year the fields must be monitored for diseases and insects and control measures carried out if required.

During the month of August, the crop is harvested and the two year cycle begins again.

Harvesting

There are two methods of harvesting lowbush blueberries - hand harvesting using a metal rake or machine harvesting. Depending on yield, an good raker can harvest five hundred to one thousand pounds in one day. Pickers are paid an average of 10 to 12 cents per pound.

A number of different machine harvesters are available. The most common harvester used is the Bragg Blueberry Harvester. The harvester is mounted on a two or four-wheel drive tractor. It is normally operated with one tractor operator and one other worker who rides on the back of the harvester. A thirty-five horsepower tractor will provide ample power for the harvester. Power is delivered to the harvester from the tractor, which drives the motor of a self-contained hydraulic

Machine Harvesting

system.



Click picture to enlarge

Blueberries are stripped from the bushes with a one-meter wide harvesting head. The harvester performs best on level ground, free of weeds and rocks. A harvester can harvest 2.5 to 3.0 acres per ten-hour day.

Marketing

Most of the crop is shipped to processors in Nova Scotia, Prince Edward Island, New Brunswick, Quebec or Maine. Some growers deal directly with the processing companies, while others belong to marketing cooperatives which sell the members crop. Usually a grower will obtain plastic tubs from the buyer prior to harvest. The harvested crop is placed into the tubs and transported to one of the local receiving stations. The receiving station will then transport the fruit to a processing plant. There the fruit is frozen for resale in markets all over the world.

A few growers sell their product to local retail outlets for the fresh fruit market. Although this product commands a higher price, considerable investments in labor and special packaging equipment is required to ensure high quality, properly graded and packaged fruit.

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