

# Growing Highbush Blueberries Organically

By Rupert Jannasch, M.Sc., P.Ag ACORN Organic Transition Specialist

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These notes are not intended to be a comprehensive guide to highbush blueberry production, but are designed as a set of supplementary notes for ACORN's berry workshops based on my experience growing blueberries over the past four years. More complete references are listed below.

## Introduction

It is interesting that extension literature and conference proceedings about organic berry production contain relatively little information about highbush blueberries. There are a number of possible reasons why, including:

- ✓ a high establishment cost per acre – approaching \$10,000
- ✓ a long wait for the first crop – a few pints per plant in year 4 and full production by year 7
- ✓ highbush must compete with a very well established lowbush industry
- ✓ many people feel highbush berries are of inferior quality
- ✓ some say it is hard to make good wine from highbush blueberries.

On the other hand, there are many reasons why highbush blueberries are well suited to organic production. These include:

- ✓ relatively low fertility requirements
- ✓ generally good resistance to pests and disease
- ✓ a broad range of cultivars means greater control of the harvest season
- ✓ highbush blueberries are suited to plantations from 10 to 10,000 bushes
- ✓ high yield per plant
- ✓ easy to harvest and keep relatively well - good u-pick potential

## Site Considerations

In general, highbush blueberries are well adapted to the relatively acidic soils in Atlantic Canada, and, therefore, provide an opportunity to use more marginal agricultural land. This crop thrives in a pH range from 4.8-5.5. Like many horticultural crops, however, blueberries do not like wet feet. Despite having a relatively high demand for water, in comparison to grapes, for example, the ideal soil will be light and well drained. In exceptional circumstances, highbush blueberries are also known to thrive in soils high in organic matter such as marsh or peat soils.

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## Selecting a Blueberry Variety

There is an incredibly wide variety of highbush blueberry cultivars on the market. They are distinct in terms of :

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|---------------------------------|--|
| ✓ taste                         | Patriot = tart, Burlington = sweet, Jersey = very sweet      |
| ✓ growth habit                  | Jersey = tall, wide open, Patriot = more compact, many stems |
| ✓ yield                         | Variable depending on site and climate                       |
| ✓ time of harvest               | Patriot = very early, Duke = early, Burlington = late;       |
| ✓ fruit ripening                | Patriots are picked 4-5 times, others, 2-3 pickings          |
| ✓ fruit quality                 | Variable   |
| ✓ disease resistance            | Patriot susceptible to Monolinia blight (Mummy berry)        |
| ✓ susceptibility to winter kill | Nelson is prone to winter injury                             |

Some of these varieties are no longer available as nursery stock and are being replaced by newer cultivars. Be aware that variety descriptions vary a great deal in the extension literature. One difficulty with accurate assessments of new varieties is that the long wait to maturity means production experience takes a long time to accumulate.

Anticipate what your market will be and plan to include varieties suited to that market and your own time and labour constraints.

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## Obtaining Planting Stock

Whenever possible, it is best to obtain planting stock from nurseries that specialize in propagation rather than garden centres (Note: there are deals to be had at garden centres in the fall). Buying from reputable nurseries should mean that (a) the grower will receive the variety paid for, (b) the plants will be healthy, and (c) the plants should be less expensive. Avoid buying plants from areas like British Columbia because they could introduce new diseases to the region and the cultivars may not be suited to maritime growing conditions. If buying a large quantity of plants, orders often need to be placed one or two years in advance of planting.

Sometimes it is possible to purchase mature blueberry plants from existing farms. Although often more expensive than 2-3 year old plants, they do provide novice growers with an opportunity to develop their management skills and markets earlier than by planting younger stock.

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## Site Preparation

When planting a perennial crop there is only one opportunity to get soil preparation right. If plowing sod, make sure the sod is well broken down before planting so it does not form a putrefying layer next to the plow sole. At least one, perhaps two years are needed to create a deep layer of friable soil. The incidence of white grubs will also be decreased if the sod decomposes completely. Green manures and cover crops tolerant of acid soils such as vetch, winter rye, buckwheat, oats, and maybe peas are recommended. Do not apply lime.

Ideally, beds will be slightly raised (to promote drainage) and supplemented with organic amendments such as sawdust (old, if possible). A one furrow plow can be used to raise a furrow on each side of a strip 2-3 feet wide. Then add sawdust (the equivalent of a 5 gallon pail every two feet) and rototill the bed. The spacing between rows should be 10-12 feet.

Before planting, consider incorporating another pail of sawdust or peat in the vicinity of each bush (Note: some experts claim too much sawdust may restrict root growth to locations with the most organic matter). Plant bushes 4-4.5 ft apart.

Some extension literature suggest alternating rows of blueberry varieties in order to improve pollination. Staggered plantings are not normally used in large plantations.

Laneways between rows should be seeded to a low-growing grass species such as creeping red fescue. Repetitive mowing may eventually produce a sward dominated by white clover. This is not harmful, but can increase mowing costs. Consider removing grass clippings as a means of controlling fertility and soil moisture levels.

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## Fertility Management

Blueberries have a relatively low nitrogen requirement which can be met largely with compost, slow release fertilizers like crab meal and other mulches. Nitrogen deficiencies can often be overcome with timely foliar sprays made from fish emulsion. The ATTRA publication mentioned below provides some detailed information for fertility management, including phosphorus, potassium and other nutrients.

A wide array of liquid fertilizers and growth stimulants are available for foliar application. By and large, fertility management for organic blueberries is an inexact science that depends on overall soil conditions, soil pH, the type of mulch used (sawdust, bark, pine needles) and the characteristics of any other soil amendments such as compost. The most important tools for developing an effective nutrient management program are regular soil testing and leaf tissue analysis.

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## Weed Control

The jury is still out on the best methods of weed control. Regular applications of mulch such as sawdust and pine needles are beneficial, but perennial weeds can still be a problem. Keeping a weed-free strip at the edge of the blueberry bed goes a long way to prevent weed encroachment from grass laneways. A Mantis tiller can be used. Some hand weeding in the row is required. Horticultural vinegar may be an effective tool in some circumstances.

Sulphur can be effective to lower pH and large amounts (not recommended) will be toxic to many weeds. If the mix of weeds resembles those growing in your vegetable garden there is a good chance that soil pH is too high.

## Irrigation

Irrigation is usually essential to produce high yielding crops in all but the most ideal soil conditions. Drip line systems make more efficient use of water and are cheaper to operate than overhead systems. Overhead irrigation provides the benefit of frost protection.

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## Pest and Disease Control

Blueberry maggot may be present in some blueberry plantations. The greatest concern is in crops destined for export because custom's officials do not look kindly on the presence of maggot.

*Monolinia* blight (mummy berry) is a fungal disease which infects newly forming berries causing them to become soft, often brown, and to drop prematurely. The drops form the "mummified" berries that overwinter in the soil and infect the fruit of the following year's crop. Some varieties such as Patriot appear susceptible to mummy berry. Compost tea or peroxide are sometimes mentioned as possible, but not proven, controls.

Witches broom is a minor disease of blueberries, but is usually present in Atlantic Canada because the balsam fir is its alternate host. Diseased plants have masses of swollen, spongy shoots resembling seaweed. The fungal pathogen is systemic, so eliminating the disease is difficult. Regular

pruning and burning the clippings will often decrease the incidence of this disease if the plantation is otherwise healthy.

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## **Pruning**

Pruning is done when the plants are dormant and ideally when the risk of winterkill has passed. It is probably the blueberry grower's most important management technique. The goal is both to maximize yields of large berries in the production year and to promote new growth for future crops. There are 5 main steps to pruning:

1. Remove the low growth
2. Remove one of every six old canes (if twelve old canes, remove 2)
3. Prune back brushy, twiggy or diseased wood ('prune back to the new wood')
4. Thin the fruiting laterals
5. Shape the bush, if needed. The ideal bush has an open, upright vase shape.

These points are covered in more detail in a document “Pruning principles for highbush blueberries” by John Lewis of AgraPoint. Large growers aim for three minutes per bush and minimize the work done with hand pruners.

## **The Organic Market**

The organic market is alive and growing while the conventional market is suffering from a glut of high and lowbush blueberries worldwide. Some conventional growers are considering conversion to organic in order to take advantage of price premiums and greater market access. There are few, if any, certified organic blueberries from Atlantic Canada sold in the major chain stores in the region. As with many organic crops, marketing depends to a large degree on substantial personal effort in securing long-lasting and dedicated customers with a high quality product as the selling point. Blueberries freeze well and are popular for U-pick.

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## Useful References and Addresses

A Pocket Guide to IPM Scouting in Highbush Blueberries  
Compiled and Edited by Annemiek Schilder and others  
Michigan State University Extension Bulletin E-2928.

La culture du bleuët en corymbe  
Michel J. Lareau, M.Sc.  
Luc Urbain, agronomist  
Agriculture, Pecheries et Alimentation Quebec and  
Agriculture and Agri-food Canada

Higbee Berry Farm 867 Mill Rd., New Ross Nova Scotia B0J 2M0 902-689-2882

ATTTRA. Blueberries:Organic Production. [www.attra.ncat.org](http://www.attra.ncat.org)

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