

# Site Preparation for Successful Highbush Blueberry Production

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Highbush blueberry plants have the potential to live for 40 or more years. To help ensure a productive and profitable enterprise, it is vital to prepare the planting site properly – eliminating perennial weeds, tillage, pH adjustment (if necessary), installation of artificial drainage systems, adding soil amendments as required and building proper planting beds.

Assuming the site is suitable for highbush blueberry production, the first step in site preparation is to clear and eradicate any unwanted plant material, particularly perennial weeds, from the site. Weeds will compete with the newly planted blueberry bushes for sunlight, water and nutrients and hinder plant establishment and productivity. Ideally, the highbush blueberries would be the only plant species in the field, thus maximizing its growth potential. Eliminating perennial weeds before planting blueberry bushes is very important as it is the easiest time to control these weeds. Weed control when the crop is already established is much more difficult.

It is recommended to use a broad spectrum, systemic post emergent herbicide to eliminate perennial weeds from the site. Glyphosate (Round-up) is one example of this type of herbicide. Follow label directions for rates and application methods appropriate for long-term control of perennial weeds. After the herbicide application has been made and has had adequate time to kill the unwanted plant material, any dead shrubs or stumps should be removed. The site is then ready for ploughing and following this operation any large stones should be removed.

As part of the site suitability determination, soil samples should have been collected from the site to ascertain suitable soil pH. If the soil pH is marginally above the optimum of 4.5 to 5.0, elemental sulphur or aluminum sulphate can be added to lower the pH prior to planting. Similarly, if the pH is marginally below the optimum pH range, limestone can be used to increase soil pH prior to planting. Dolomitic limestone is usually the limestone source of choice as it also provides calcium and magnesium to the soil. Adjustment of pH with sulphur or limestone is a chemical process that takes up to one year to complete so it is important that these applications be made a year prior to planting. Following any necessary pH amendments, the field should be disced to incorporate the materials and to further groom the field.

Summer fallowing is a highly recommended step in site preparation and is particularly useful in reducing the weed seed population in soil if coupled with regular tillage. Weed seeds tend to germinate in “flushes” about 2-3 weeks after a tillage operation so monthly discing or harrowing is necessary to control these weeds. These flushes should be cultivated shortly after germination as they are much easier to kill at this time. Germinating weeds should never be allowed to flower and produce seeds during this period as this would defeat the purpose of the operation. Summer fallowing with regular

tillage also helps to control unwanted soil pests including various soil dwelling grubs and wireworms, and further grooms the field prior to planting.

During the summer fallowing phase of site preparation, it is desirable to install any artificial drainage aids to the field if they are needed. The choice, design and capacity of a drainage system should be related to the soil type, terrain, slope and most importantly, the degree of water logging in a wet year. Consulting with an accredited soil and water engineer on this issue is highly recommended.

There are generally three types of drainage systems which could be added to a blueberry field: cut-off (stone) drains are used for preventing surface water, or water perched on an impermeable subsoil layer from moving laterally down-slope into lower lying crops; deep (1 to 1.5 m) subsurface systems are for deep soils on level terrain with a rising water table; shallower subsurface systems are for the removal of perched water tables between depths of 0.3 and 1m, often on sloping soils. The latter systems are most commonly used in Nova Scotia and typically involve the installation of “Big-O” tile drain.

The soil samples collected during the site suitability assessment will also measure the nutrient levels in the soil and provide a guide for nutrient amendments required prior to planting. Most commonly, these amendments involve phosphorous (P), potassium (K), and boron (B) and ideally should be made in late summer or early fall prior to spring planting, with thorough incorporation by discing to a depth of 20-30 cm. Applying amendments only in the row (to be planted) is not recommended due to the fact that plant roots travel and grow in all directions, not just in the designated plant row.

It is important that these nutrient amendments be made prior to planting as they may be incorporated at this timing so as to be evenly distributed in the soil and directly available to the future crop. Post-planting applications are by necessity surface applications and for insoluble or slowly soluble nutrients like P and K they essentially stay on the surface where they have limited availability to the crop.

Following the addition of any P, K, and B it is desirable to plant a fall cover crop to prevent any soil erosion over winter. Oats are a great choice as a fall cover crop as they are cheap, establish quickly for effective erosion prevention, and winter kill completely – desirable for easy spring cultivation. Oats should be planted around mid-September in Nova Scotia to ensure adequate establishment.

The final step in site preparation is planting bed formation prior to spring planting. If raised beds are going to be used, they should be made at this time, generally to a height of 15-20 cm and spaced 3-3.5 m (10-12 ft) apart. Raised beds (ridging/surface modification) are often used in very shallow, fine textured and/or slow draining soils. In cases where the topsoil depth is limiting and the subsoil cannot be utilized (i.e. heavy, clay horizons with no structure and permeability, bedrock, other hard-pans, etc), soil depth and drainage can be improved with the preparation of raised beds. Excess surface water is directed away from the base of the plant line, into the lane-way and out of the plantation, with a row direction conducive to the removal of excess surface water. Surface

modification such as this may require some small adjustments to blueberry plantation management practices, but the investment in drainage and additional topsoil depth on these shallow soils can lead to a remarkable improvement in plant performance and stand uniformity (Planting and Care of the Young Apple Orchard, 2005).

When preparing a site for highbush blueberry production, several aspects must be considered – elimination of perennial weeds, tillage and stone removal, pH modification, installation of drainage systems, addition of soil amendments and building proper planting beds. By remembering the information in this guide, it is possible to create a site for blueberry plants to grow and thrive for optimum profitability.

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## BIBLIOGRAPHY

Atlantic Committee on Fruit Crops. Planting Care of the Young Apple Orchard. 2005. [http://www.extensioncentral.com/index2.php?option=com\\_docman&task=doc\\_view&gid=29&Itemid=32](http://www.extensioncentral.com/index2.php?option=com_docman&task=doc_view&gid=29&Itemid=32)

Craig, Donald L. Highbush Blueberry Culture in Eastern Canada. Agriculture Canada, Nova Scotia. 1980.

Eck, Paul and Norman F. Childers. Blueberry Culture. Rutgers University Press. New Jersey. 1966.

Galletta, Gene J. and David G. Himelrick. Small Fruit Crop Management. Prentice Hall Career and Technology. New Jersey. 1990.

Handley, David T. Growing Highbush Blueberries. [www.umext.maine.edu/onlinepubs/htmpubs/2253.htm](http://www.umext.maine.edu/onlinepubs/htmpubs/2253.htm).

Hanson, Eric J. and James F. Hancock. Hints on Growing Blueberries. Michigan State University Extension. [www.msue.msu.edu/vanburen/e-2066.htm](http://www.msue.msu.edu/vanburen/e-2066.htm)

Lewis, John. Highbush Blueberry Workshop Presentation: Planting and Fertility Management. AgraPoint. 2002.

Lewis, John. Highbush Blueberry Workshop Presentation: Site Selection and Preparation. AgraPoint. 2002.

Pritts, Marvin P, et. al. Highbush Blueberry Production Guide. Northeast Regional Agricultural Engineering Service. Maine, 1992.

Strang, John et. al. Growing Highbush Blueberries in Kentucky. University of Kentucky – College of Agriculture. <http://www.ca.uky.edu/agc/pubs/ho/ho60/ho60.htm>. 2003.