

Organic weed control options for highbush blueberry

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Researchers study mulching options for weed control at Blueberry Acres in Nova Scotia. Credit: Photo courtesy of Derek Lynch

Research scientists at Nova Scotia Agricultural College have been working steadily to find effective organic methods to control weeds in cultivated blueberry crops. One resulting study, published in a recent issue of the ASHS journal *HortScience*, reported on the efficacy of three organic mulches used on highbush blueberry (HBB) produced under organic production practices. The research team determined that the major factor influencing weed suppression by compost mulches (for certain weed species) was likely mulch thickness and bulk density, which provide a barrier to weed growth and prevents light penetration to the soil surface.

Weeds are a widespread problem for the [blueberry](#) industry. North

American commercial blueberry producers who took part in a recent survey indicated that [weed](#) problems were a concern in almost all production areas, particularly in young plantings when bushes are not fully established and most susceptible to competition. Weed control is even more of a challenge for growers of organic products, including organic highbush blueberry (*Vaccinium corymbosum* L.). The current study was initiated as an attempt to find feasible, effective organic weed control methods to sustain Nova Scotia's growing blueberry industry.

A two-year field study was conducted in 2005 and 2006 in an established field of 5-year-old northern highbush blueberry at Blueberry Acres, a commercial blueberry operation in the Annapolis Valley of Nova Scotia. Mulches, applied in-row at a 20-cm depth, included pine needles, manure-sawdust compost, and seafood waste compost.

Dr. Derek Lynch, of the Department of Plant and Animal Science at NSAC, headed the research team. According to Lynch, organic materials such as pine bark, peat, and sawdust are commonly used as a preplant soil amendment to increase the organic matter content of mineral soils, but heavy applications of organic mulch can result in high soil salinity and impact plant yield and growth, even resulting in environmental impacts. "Alternately", noted Lynch, "thickly applied organic mulches may be an effective weed management option. Mulch thickness is an important consideration because the emergence of weed seedlings is inversely related to seed depth, meaning the efficacy of weed control tends to increase with mulch thickness."

The study reported that pine needles (PN) were the most effective mulch in suppressing weed growth, with 55% less and 73% less aboveground weed biomass compared with the control in 2005 and 2006, respectively. Pine needle productivity effects were much more modest, however. One year after application, pine needles lost some efficacy at suppressing weeds but the treatment was still superior to both composts. The

researchers recommend continuing to topdress PN or similar mulches on a yearly basis to maintain mulch thickness.

Lynch summarized; "This approach can be cost-effective depending on local availability of mulch materials. However, precautions should be taken to avoid excess nutrients from heavy application of nutrient-rich mulches and weed-seed contamination of these types of mulch." He added that more research is needed to evaluate the long-term effects of different mulches on productivity and nutrient availability in these systems.

More information: The complete study and abstract are available on the ASHS *HortScience* electronic journal web site:

hortsci.ashspublications.org/content/44/3/688

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