

Pruning Wild Blueberries: Principles and Practices

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Growth Habits and Pruning

Once a wild blueberry seed germinates and sprouts into a plant, rhizomes (underground stems) are soon produced and grow laterally near the soil surface. Roots grow downward from these rhizomes, and buds along them produce upright stems that push up through the soil surface to produce the above ground plants. As the rhizomes spread, a unique "clone", a group of stems with the same genetic makeup, is produced. Each clone within a field is distinct from all others.

Commercial pruning is possible because the blueberry can tolerate removal of above ground plant parts. The initial response to pruning is the production of new vigorous stems that grow vegetatively during the first growing season following pruning. The greatest amount of new growth and input of resources occurs during the first two growing seasons; thus, maximum fresh fruit yields usually occur in the second year following pruning. If blueberries are left unpruned for more than two years, fruit production drops rapidly because fewer resources are available for new growth and fruit development as the plant (stem) ages. Commercial management practices are, therefore, based on forcing the blueberry into flushes of growth and fruit production by pruning every second or third year.

Pruning removes or kills stem material of the blueberry, either back to ground level (burning), or back to or beyond the cut end of the stem (mowing). New stems from underground rhizomes (those from burning) usually appear more vigorous than do those that arise from the cut ends of the old stems (those from mowing). Because there may be fewer stems and branches in plants pruned by burning, harvesting may be easier than in fields pruned by mowing. Repeated research studies have demonstrated that yields from burned fields are similar to those from mowed fields, suggesting that both methods are equally acceptable. The decision regarding the type of method to use then becomes one of convenience and economics.

Burning

Burning has been used most often in the past to prune lowbush blueberry fields. Essentially, four methods have been used.

Free Burn

If blueberry land has plenty of grass it is possible to use the standing vegetation as fuel. After dozing or burning a fire break, the field is ignited and allowed to burn. A slight breeze may be needed to carry the fire, but do not attempt to burn if there is much wind. The fire may skip over certain parts of the field. These may have to be touched up. A free burn is only possible in the early stages of development of a field and before good weed control. This is the cheapest type of burn.

Burning with Straw

Unless an abundant and inexpensive supply of straw is available, this type of burn tends to be the most expensive. Between 40 and 50 rectangular bales of straw are needed per acre of blueberry land. Mechanical straw spreaders are becoming more common and are quite efficient. Some growers are now spreading large round bales of straw with spreaders. Straw spreading should be done in the fall, well after harvest. Wait until the blueberry leaves have turned red and fallen. Allow straw to settle over the winter, then burn in the early spring when moisture and wind conditions are suitable. The cost of burning with straw is \$110 to \$140 per acre.

Burning with straw



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Burning with Oil

Fuel oil burners are the fastest method of burning blueberry land. The flame is very hot, but much of the flame's efficiency is lost to the atmosphere. Work is ongoing to make oil burners more efficient and to reduce the cost, which currently is \$100 to \$130 per acre.

Burning with Propane

Propane burners are used in a few areas of Nova Scotia. On smaller acreages and where the grower is not on a strict time schedule, it is an excellent burner. The cost of burning with propane is about the same as for burning with oil.

Essentially, a good burn will kill lateral buds and shoots above ground level and burn off grasses and other weeds. "Hard", deep burns tend to decrease the organic layer that lies just under the leaf layer, and also destroy plant and soil materials that contain nitrogen, a necessary and limiting nutrient. Most of the rhizomes are located in or very near to the organic layer. Removal of this layer by "hard" burns may expose both rhizomes and roots, with subsequent reduced growth, die back and decreased production. It is also possible that such practices may contribute to soil losses by erosion from bare spots.

Reduced growth from rhizomes affected by "hard" burns may result in "run out" fields, in which the plant stems are short and give poor yields. Research results have demonstrated that as the organic matter of the soil increases, plant stem length usually increases as well. In blueberry fields, the most vigorous stems usually occur around decaying stumps where organic matter is high. Nitrogen containing fertilizers may be used to replace nitrogen lost through burning.

The major objective of the pruning operation is to prune properly at the least expense. If possible, burn when the ground is frozen or contains some moisture. If the weather is very dry and warm, a faster and cheaper burn will be obtained, but there is the possibility of burning too deep.

Before any field is burned, permission should be obtained from the local Nova Scotia Department of Natural Resources office. A fire break should be established around the outside of the field to prevent the fire from spreading into forest or cut over areas. A bulldozer can be used to scuff off a fire break. In addition, an area just inside the fire break can be given a controlled burn.

When burning, have a water tank with hoses and knapsack water pumps available in the field. Always have water available for protection, no matter what burning method is used.

Mowing

Pruning with a flail mower has proven effective and is less costly than burning. If done well, mowing can produce results nearly as good as those achieved with a burn. However, if mowing is not properly done, plants may be short, branched and unproductive. As well, where several prunes in succession have been done by mowing, the incidence of disease and insects may be greater.



The cost of mowing is \$30 to \$40 per acre.

Combining Mowing and Burning

Some producers are currently experimenting with alternating mowing and burning on fields where feasible. The purpose is to lower management costs by mowing, while at the same time obtaining the beneficial insect, disease and weed control of burning.

Another practice some growers are using is to mow the field in the fall and to burn the field the next spring. This procedure will remove the stems to near ground level and kill the stems back to the ground. The plants will regrow from underground rhizomes.

When to Prune

When to prune is always a question which prompts discussion. Some growers prune fields in the fall; other growers prune in the spring. Fields can be pruned any time the plants are dormant. Growers should wait until after the first hard frost in the fall. Pruning should be done before bud break in the spring. The best time to prune depends to some extent on the method of pruning used. Flail mowing in the fall usually gives better results than a spring mow. Mowing in the spring allows regrowth from the above ground stubs. With fall mowing, these stubs tend to die back to ground level before growth begins in the spring.

If a straw burn is to be used, the straw is spread in the fall, settles down around the blueberry plants during the winter, and is burned in the spring.

If oil or propane burning is to be used, there appears to be little difference between fall and spring in terms of plant growth. However, a big advantage of fall burning is that the grower knows that the job is done and new growth can begin as soon as conditions permit in the spring. A disadvantage of fall burning is the increased possibility of erosion.

Frequency of Pruning

The most common pruning cycle is two years. A two-year cycle includes fall or spring pruning, allowing vegetative plant growth and fruit bud set in the first season and with flowering, pollination, fruit development and harvest in the second season.

The three-year management system involves harvesting fields two years in succession. Therefore, pruning is needed every third year instead of every second year. Yields from the second crop are usually lower than those from the first crop. Management costs are lower, however, because pruning and herbicide applications are usually necessary only in the prune year. One commercial grower in Nova Scotia has followed this system since 1985. His farm has realized additional income while reducing the acreage requiring pruning and herbicide application each year.

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