Lowbush Blueberry Fact Sheet

Bunchberry Control in Lowbush Blueberry

Bunchberry Control in Lowbush Blueberries with Spartan 75DF™

Spartan 75DF™ (tribenuron methyl, also known as Express) was recently registered in Canada for the control of bunchberry (also called pigeon berry) in lowbush blueberries. This factsheet has been prepared to provide blueberry growers with additional information on the use of this new herbicide. The label states:

For bunchberry control apply Spartan 75DF™ at 40 g/ha with 0.2% v/v Agral 90 (2 L Agral 90 per 1000 L of water) in the spring of the sprout year. Apply in 150 to 250 L of water per hectare.

For best results, applications should be made when the majority of the emerged bunchberry plant leaves have unfolded to form a 45 degree angle, but no later than when the first white blossoms are visible on the most advanced plants. Spartan 75DF™ + Agral 90 should be applied before blueberry sprout regrowth exceeds 2 cm in height. Applications made at later stages of blueberry development or applications made in spring burnt fields are not recommended due to potential crop injury and yield reductions. Blueberry plant stunting can result following Spartan 75DF™ + Agral 90 application, but they recover and fruit bud numbers and yields are not affected. Recommended fertilizer applications in the same spring as Spartan 75DF™ + Agral 90 applications can be beneficial.

Spartan DF™ should not be tankmixed with velpar, atrazine, or any other pesticide.

Application Timing

Spartan 75DF™ is a post emergent herbicide that is only effective if applied to the foliage. Therefore, proper timing of application is critical with the use of this herbicide, and timing will directly affect the level of bunchberry control and crop injury.

a) Bunchberry Growth Stage

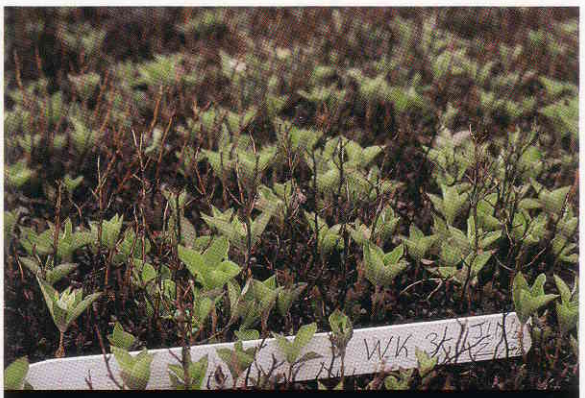
Bunchberry is one of the first plants to emerge in the spring and usually starts to emerge before blueberries. Generally the only other plant to emerge before bunchberry is wild lily of the valley. This plant is not to be confused with bunchberry as it forms a shiny green single leaf when it emerges.

Bunchberry emergence is generally spread over a 4 to 5 week period. They emerge from buds formed at the base of the previous year's stems and from buds on the spreading roots. These pinkish-white buds are easily observed first thing in the spring by sweeping back the upper 2.5 cm of the organic duff layer.

The buds later swell and a stem emerges with leaves curled upright around it, giving a cylinder-like appearance. Approximately 1 week later, the leaves begin to unfold away from the stem, and do so for approximately another week until they have unfolded completely. As the leaves unfold, a small greenish-yellow flower becomes visible. As the leaves fully unfold the enclosed flower turns a bright white. Not all plants will flower, however.

(fig. 1) - Early timing - leaves 45°.

The Spartan 75DF™ application timing which has provided the most consistent control in the sprout year is from the time when: the majority of the bunchberry plant leaves have unfolded to form a 45 degree angle off the stem (fig. 1) until the leaves have just fully or nearly unfolded and the first white flowers are visible on the most advanced plants (fig. 2). This stage will generally occur 1 to 3 weeks after bunchberry plants first start to emerge. However, this can vary depending on the weather. *At this timing, there will still be some bunchberry plants emerging. It is critical that blueberry growers carefully monitor their fields to determine when the bunchberry plants are at their optimal stage.*



(fig 2) - First white flowers visible.

Bunchberry plants stop growing and competing within hours of being sprayed with Spartan 75DF™, but may take weeks to die down. Sprayed plants generally turn pinkish red and eventually die. If applications are made too late however, the plants turn red and remain

so for the entire season. Reduced control can then be expected. If Spartan 75DF™ is applied too early, bunchberry regrowth can be expected later in the season.

b) Blueberry Growth Stage

The tolerance of blueberry plants to Spartan 75DF™ is limited and timing of application is critical in reducing the risk of crop injury. Results from research trials have indicated that if Spartan 75DF™ is applied before new blueberry stem regrowth reaches 2 cm (3/4 inch) in height, fruit bud numbers and yield will not be affected. However, some stem height reduction with some yellowing and reddening of the blueberry leaves might be observed for 6 to 8 weeks after application. Occasionally blueberry emergence may also be slightly delayed. Yields are not significantly reduced, however.

The stage of blueberry development generally corresponds to the time when bunchberry is in the optimal stage of growth for application, but this may vary depending upon the field, year, method of pruning, etc. Applications made after this stage may induce severe crop stunting and reduce yields. Late summer applications have drastically reduced bloom and yield the following year. To reduce the risk of crop injury, it is advised that only bunchberry infested areas in blueberry fields be treated with Spartan 75DF™.

Other factors influencing Spartan 75DF™ Activity

a) Method and Timing of Pruning

Applications of Spartan 75DF™ following fall mowing, fall burning, and spring mowing have not influenced the effectiveness of Spartan 75DF™. Spring burning has provided variable results, however. In a few research trials, plots which were spring burnt and followed by a Spartan 75DF™ application, resulted in significant injury to the blueberry plants.

(fig. 3) - Treated and untreated areas.

Spring burning delays bunchberry emergence by burning off the buds, or plants which have emerged before the blueberries. As a result, by the time the bunchberry regrows to its optimal growth stage, blueberries may be more advanced than desired. At the advanced stage, blueberry plants are more sensitive to Spartan 75DF™ and increased injury can result.

In trials where injury had resulted, plots had been burnt late and hard. It is felt that an early, light burning will likely not result in blueberry injury. Further research will be conducted to verify this. As a precaution however, applications made to spring burnt fields will not be recommended until further research is conducted.

Uneven spring burning can also influence the level of bunchberry control. Often the area directly under the burner head is burnt more intensely than the area between the burner heads. On rough fields where burner stacks tend to move up and down, uneven burning can also result. This uneven burning influences how fast bunchberry plants emerge. Bunchberry present in the lighter burnt areas emerge and reach the optimal application stage faster than the bunchberry present in the more intensely burnt areas. Proper Spartan 75DF™ application timing can therefore be much more difficult on blueberry fields which have been burnt unevenly in the spring. Reduced and inconsistent results could therefore be expected under these circumstances.

b) Fertilizers

Fertilizers may help offset some of the blueberry stunting observed in research trials. Results from trials that included 9-46-0, 13-26-5 and 34-0-0 indicated that blueberry plants generally recovered faster and bunchberry control was often improved. Differences were not always statistically significant, however.

c) Weather

Under certain conditions such as prolonged cool weather temperature or wide fluctuations in day/night temperatures, just prior to or soon after treatment, temporary yellowing and/or crop stunting may occur.

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