

## **Weed Control in Turf with the Bioherbicide Sarritor**

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### **Summary**

A field study was initiated at the Victoria Golf Course in Edmonton that had a low to moderate natural infestation of dandelion. The objective of the study was to test the product, Sarritor, for its post-emergent effects on dandelions. Two rates of the product were first applied in July, 2009. Dandelion counts were recorded prior to the first treatment and then again just before a second application was made in the fall. Results did not show any control following the initial treatment. This study will continue in 2010 to assess application timing, rate and moisture conditions surrounding the application dates.

### **Introduction**

Dandelions (*Taraxacum officinale*) are an important problem weed in turfgrass and have typically been controlled by herbicide application. Currently some municipal governments in Canada have proposed a ban on pesticide use in residential and other public areas. In some areas, these bans have already been implemented. Therefore, the development of alternative tools for weed control in home lawns and gardens, school grounds, and municipal parks is needed.

A new control product, Sarritor, has been recently registered for weed control in turf. The active ingredient of Sarritor is *Sclerotinia minor* IMI 344141, a fungus that will infect susceptible plants and destroy plant tissues above ground and at the top part of the root system. Their label points out that, 'As Sarritor contains a living organism, the level of control may vary with environmental factors that influence fungal germination, growth and development.'

The specific objective of the trial was to test the rate and timing of application of Sarritor for post-emergent control of dandelion.

### **Materials and Methods**

Little is known about how to effectively apply this product, so a field test was established on July 24, 2009 at the Victoria Golf Course in Edmonton to assess the product under Western Canadian conditions. A Kentucky bluegrass/creeping red fescue fairway with a uniform infestation of dandelion was selected. The site was mowed three times per week at a height 1.8cm, was irrigated on a regular basis, and was fertilized at a rate of 1 kg N/100m<sup>2</sup> over the growing season.

Plots measuring 1.0 by 1.0 meters were laid out in a randomized complete block design with four replications. The Sarritor treatments were applied to the plots using a shaker bottle according to the rate and schedule listed in table 1. Application dates were July 24 (spring application) and September 24 (fall application). Immediately after application, the plots were watered with watering cans at a rate of 10 litres/m<sup>2</sup>. The control plots were not watered.

An initial dandelion count was performed prior to the application of the treatments. Prior to the fall application, a weed count was again taken in order to determine any effect of the initial application.

Table 1 List of treatments: Victoria Golf Course Edmonton.

Treatments	Application Rate	Application Timing
1. Untreated control		
2. Sarritor	40g/m <sup>2</sup>	Spring
3. Sarritor	60g/m <sup>2</sup>	Spring
4. Sarritor	40g/m <sup>2</sup>	Fall
5. Sarritor	60g/m <sup>2</sup>	Fall
6. Sarritor	40g/m <sup>2</sup>	Spring and Fall
7. Sarritor	60g/m <sup>2</sup>	Spring and Fall

### Preliminary Results

There was no change in dandelion populations after the first application of Sarritor (Table 2). This trial will be maintained for at least one more season, in order to determine the effectiveness of the products.

Table 2 Dandelion population following Sarritor application, Edmonton 2009.

Treatments	Start of trial	Fall rating
	Dandelion per m <sup>2</sup>	
1. Untreated control	10a	11a
2. Sarritor 40g/m <sup>2</sup> Spring	11a	11a
3. Sarritor 60g/m <sup>2</sup> Spring	6a	6a
4. Sarritor 40g/m <sup>2</sup> Fall	10a	10a
5. Sarritor 60g/m <sup>2</sup> Fall	9a	13a
6. Sarritor 40g/m <sup>2</sup> Spring and Fall	11a	11a
7. Sarritor 60g/m <sup>2</sup> Spring and Fall	11a	11a
	LSD <sub>0.05</sub> =	n/s
		n/s

### Discussion

The Sarritor label states, “The active ingredient of Sarritor, *Sclerotinia minor* IMI 344141, will infect susceptible plants and destroy plant tissues above ground and into the top part of the root system. As Sarritor contains a living organism, the level of control may vary with environmental factors that influence fungal germination, growth and development.” Research has shown that mycelia of the fungus in Sarritor will not survive longer than 11 days. This would indicate that control would require the fungus to infect weeds soon after application.

The directions for use on the label also states: Sarritor can be applied when daytime high temperatures are 18-24°C and rainfall or irrigation occurs within 12 hours of application. The higher application rate (60 g/m<sup>2</sup>) can be applied when environmental conditions are

sub-optimal and when the turf is highly infested with weeds. Sub-optimal conditions are described as daily maximum temperatures outside of the optimal range, but not greater than 27°C, and conditions that are dry.

In this study, plots were watered after application of the Sarritor at a rate of 10 litres/m<sup>2</sup>. It may be that this quantity of water removed the fungus from the leaves and, as a result, was not able to infect the dandelions. Watering prior to the application of the fungus or making applications when dew is present might increase the infection of the dandelion. The other possible explanation is that, due to excessively dry conditions, the dandelion was not a particularly susceptible host for the fungus at the time of application.

Therefore, factors that may influence the effectiveness of the fungus are moisture conditions and plant susceptibility. Future research will focus on these individual factors.