

Swiss Needle cast is without a doubt the most insidious disease to attack Douglas fir. In comparison to Rhabdocline needle cast, Rhabdocline is child's play! Without proper management, Douglas fir will be a tree of the past. Now do I have your attention?!

With all this said, yes, it can be successfully managed, but it will take commitment, additional cost with increased sprays, and equipment that will expedite timely applications. Management strategy:

1. Going against all you've ever learned about IPM, don't wait until you find your first infected needle/tree to begin control measures. By that time, it may already be too late! All Douglas fir from seedlings planted this year up to market size trees need to be treated. I have been very successful controlling **Swiss** with "5" applications of Chlorothalonil beginning at first bud break and continuing until mid-June at 7-10 day spray intervals. (*Sarah's note: Growers in southern regions who are experiencing bud break now may actually be finished with a 5th spray in early June, not mid-June.*)
2. Applications have to be made to new elongating shoots prior to wetting (i.e. rain or dew). If these sprays cannot be made in a timely fashion, you've already lost the war! Having the proper operation is essential! The days of dragging hoses and backpack sprayers is over if you cannot treat all your trees in a day or so, or at least prior to a wet period. Through coverage on all sides and from top to bottom is critical to keep this disease in check.

Growers that "stump plant" have to be ever more vigilant as to good coverage. Very often a large tree will block the spray pattern from smaller trees on the back side. All trees, all sizes, need to be treated! Just a side note: good weed control will aid in good lower tree coverage.

The question of economics comes up when I talk about 5 applications. If you are producing a high quality tree that is demanding a premium price, then it is economical to treat 5 times a season. However, if you are blowing trees out at \$12-\$15 a tree, you better look at a cost analysis!

3. Later sprays, late May thru mid-June, seem to be the most important for controlling **Swiss**. People are used to making 2-3 applications to control Rhabdocline and don't make the last 2 applications. They get caught with brown trees the next spring. Follow through with the later sprays.

The question comes up, "Can I save already infested trees?" My answer, "That depends." Heavily infested trees will have their growth greatly reduced. In some cases, I have seen less than 1" of side growth; in which case it may take 2, 3, or even 4 years to cover up damage and return growth to normal length. And that's only if you continue to

treat and keep the trees clean of infection. If your trees are already large, do you have that much time?

Being a grower and no longer working as a Penn State Extension Educator, I don't have to be concerned with product endorsement. So here it goes! I recommend Bravo Weather Stik® to control **Swiss** and Rhabdocline needle cast. The reason is simple. The Weather Stik formula stays in place, even after several rains, if given time to thoroughly dry. Generic brands of Chlorothalonil will work but lack the "wash off resistance" of the Bravo brand. Remember – product has to be in place prior to a wet period. The last thing I need is a product that will wash off when I need its effectiveness the most.

Good Luck!

Paul Shealer, Evergreen Acres Christmas Tree Farm

Swiss Needle Cast Images – Top Left: Underside of Swiss-infected needles; Top Right: Close up of fruiting bodies on underside of Swiss-infected needles; Bottom Left: Brown tip symptom of Swiss needle cast infection; Bottom Right: Field of trees severely infected with Swiss needle cast.

