Title of project.

Evaluating IPM Strategies and Alternative Fungicides for Reduction of Rhabdocline Needle-cast on Douglas Fir.

Project leader(s) and contact information.

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Background situation.

Douglas-Fir is a major component of the Christmas Tree and Nursery industries in NY state. Over 40 growers and nurseries are producing Douglas-fir in Monroe and Wayne Counties alone. In addition, most retail nurseries and garden centers sell large volumes of this evergreen species and furthermore, the landscape industry of both counties relies heavily on Douglas –fir in commercial and residential settings. During random visits to several wholesalers and growers alike, trees infected with Rhabdocline needle-cast have been notably poor in quality. Often the infections are so severe that affected trees have cast such a large percentage of 2nd year needles as to become unacceptable, as either Christmas trees or landscape specimens, and thus are lost. One grower estimates losses approximately $10,000 per year due to this needle-cast disease. Reports in Cornell's ornamental pest newsletter, *Branching Out*, Indicate the problem is statewide.

Fungicides currently labeled for controlling Rhabdocline on Douglas-fir are costly and require repeated application. Also, over-use of these labeled products is suspected to have potential for adverse environmental effects. A variety of federal, state and local legislation calls for the reduction of chemical pesticide use, and the "green industry" is attempting to comply with increasing restrictions on effective materials. Certainly, "organic'" alternatives are being sought in nearly all phases of agriculture, and they are increasingly demanded by homeowners with children and pets. Even the perception of a hazard can influence farm neighbors and customers, particularly at Cut-Your-Own operations.

Current IPM strategies recommended to control Rhabdocline include: weed control (mowing), lower branch removal, selecting plant sites with good air drainage, and removal of severely infected trees. However there have been problems with IPM implementation involving lack of grower's time to perform the labor-intensive tasks involved and a lack of efficacy information on possible alternative products.

Expected outcomes of project.

By evaluating results from applications of alternative fungicides, we hope to determine the feasibility of utilizing some of these materials to control Rhabdocline needle-cast of Douglas-fir thus reducing loses and, possibly, reducing management costs.

Project activities.

Two local growers provided sites for the trials. At each site 20 trees exhibiting needle-cast were selected per treatment. At the Dittmar site we applied active compost-tea and copper hydroxide. The Aman's site was treated with potassium carbonate and lime-sulfur. The industry standard, chlorothalonil, was applied at both sites for comparison.

Treatments began with a dormant application of lime-sulfur on May 11. Regular treatments began when new growth was _ inch long and visual examination indicated sporulation had begun.

Results and Farmer/business-level impacts.

Efficacy: Symptoms of the disease will not show up until early 2006 so efficacy can not be evaluated at this time.

Cost: Material costs were highest for the compost tea ($5.04/tree/season) and lowest for potassium carbonate ($0.80/ tree/season). In comparison to chlorothalonil at $0.12 / tree/season all alternatives were substantially more expensive. In addition, both the lime-sulfur and copper hydroxide require the use of personal protective equipment which is an extra expense plus an increase in labor time.

Labor: Chlorothalonil only required three (3) applications while all the alternatives tested required more. The potassium carbonate and compost tea required four (4), the lime-sulfur five (5) and the copper hydroxide was the most labor intensive with seven (7). The potassium carbonate shows the most promise in terms of material and labor costs however its efficacy remains unknown.

Other participants (grower names excluded for privacy concerns).

Dr. George Hudler, Cornell University, Pathology advisor.
Mr. Brian Eshenaur, Monroe CCE, Pathology advisor.

Outreach & media.

A press release resulted in articles being printed in a regional and a local newspaper. Articles also appeared in both the Wayne Co. and Monroe Co. extension newsletters. Presentations were made to the Genesee-Finger Lakes Nursery Association, at three garden centers and in a report to the Wayne CCE Board of Directors. Others are planned once the final results have been tallied.

Producer evaluation.

The participating growers, and other growers we encountered, were pleased that we were looking into this disease and alternative methods of managing it. They also liked the fact that the study was confined to a small percentage of their production area and didn't interfere with normal operations.

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