

Phytophthora Root Rot Survey

By Jill R. Sidebottom, Area Extension Forestry Specialist

This spring if you attended a meeting where I was speaking, you may have filled out a survey I was conducting about losses due to *Phytophthora* root rot (PRR). This was a very informal survey to try to document some of the losses people were having in 2005 after all the flooding the fall of 2004. This survey was only filled out by folks attending evening meetings early this year, so it is not representative of all growers or all of the Fraser fir growing areas. Also, growers were not forewarned about this survey. They hadn't gone out and taken counts of dead trees. There were only estimating losses based on what they could remember. However, there were some interesting trends that I would like to report. The following are some results of that survey.

There were 87 surveys filled out. These represent:

- 51.5 acres of Canaan fir
- 21 acres of Concolor fir
- 5,687 acres of Fraser fir
- 80 acres of white pine
- 47.25 acres of blue spruce
- 98 acres of Norway
- 57.5 acres of other conifers

for a total of 6,042.5 total acres. This would represent not quite 20% of the Fraser fir acreage and less than 10 % of all Christmas tree growers in North Carolina.

Of these, 88.5% of growers reported losses due to PRR in 2005. In 2001 I conducted a Pest Management Survey of practices and pest losses in 2000. At that time, 60% of growers reported having some loss due to PRR.

Growers reported losses totaling 280,119 trees in 2005. These break down as follows:

SIZE CLASS OF TREE	Fraser Fir	Canaan Fir
Trees set in 2005	144,750	13,300
Trees set in 2004	73,195	4,425
3-5 foot	70,410	600
6-8 foot	13,402	50
9-10 foot	970	—
> 10 foot	227	—
TOTAL	302,974	18,375

This represented approximately 7% of each growers Fraser fir but 36% of each grower's Canaan fir. I think this much greater percentage of losses of Canaan fir, a tree that is supposed to have some field tolerance to PRR is because the Canaans were being set in root rot prone sites, making the potential for losses greater. Losses reported in the 2001 Pest Management Survey were only an average of 275 trees per grower, far lower than the 2005 losses.

I asked several questions about the sites where root rot was a problem. The first was if trees were dying in fields previously set in trees or in new fields. One would expect the incidence of PRR to increase with subsequent rotations and for losses to be lowest in newly planted fields. In this survey, 56% of growers had losses where trees had previously been set in trees and 21% had trees to die in new Christmas tree fields.

Following along those same lines, were the losses in areas where trees had previously died due to root rot—just an expansion of a previous disease problem—or was it in a new area where trees had never had a problem before. Not surprisingly, 63% of growers reported losses in fields where there were previous losses due to PRR, but 24% of growers had losses in fields which had never had PRR prior to 2005. This was a startling number.

Land is scarce and sometimes people plant trees where they shouldn't, so I asked growers if they considered the site where they planted Fraser fir to be a good one. Remember that this is the grower's opinion. There were no evaluations of sites. But fully 67% of growers reported that they thought the site was good for Fraser fir production while 20% admitted they were growing on marginal and 2% on poor land for Fraser fir.

I asked how tree mortality appeared in the field. There were 16% that reported trees dying generally throughout the field (no pattern), 21% that trees died in a scattered pattern in the field, 48% reporting trees died in localized area only, and 26% reporting trees dying in a pattern spreading from an area where trees had died previously.

I also asked about the seedling and transplant source where trees had died. About one-third of the growers

reported growing transplants themselves, 14% purchased seedlings from the Forest Service at Crossnore, 30% bought from another North Carolina grower, and 36% from out of state growers. About a quarter of the growers reported buying transplants that had been grown in the greenhouse either in NC or another state. Of growers who had losses in 2005, 5% knew that the transplants they purchased had been in beds that were flooded in 2004.

The last question I asked was what they were going to do in 2006 in areas where they had trees to die from root rot. The numbers show that growers know their options are limited and they weren't sure what to do.

- 29% said they weren't going to reset.
- 14% said they would reset Fraser fir.
- 35% said they planned on resetting with Fraser fir and using a fungicide root dip.
- 12% would reset with Canaan.
- 25% planned on setting another species of conifer such as blue spruce, Norways or white pine.
- 6% planned on using a fungicide on remaining trees to harvest what trees they could.
- 31% said they still hadn't decided — several people marked this as well as another response.

I also surveyed seedling and transplant growers. Their

losses were tremendous. There were 29 seedling and transplant producers that filled out this survey with 79 % reporting losses due to PRR. These 23 growers reported losing approximately 1,696,250 seedlings and transplants. Even when production practices of fumigation with methyl bromide and the regular use of Subdue and Aliette were followed, growers still reported some losses but their losses were about half as much.

So what is next? I plan on going back to these counties to see how these sites where so many trees were lost in 2005 are looking. Also, early in 2007 I plan on conducting another pest management survey where I hope to document growers' pesticide use, ground cover management, scouting habits, disease and insect losses and other pertinent information. When you receive your survey in the mail, please fill it out as completely as you can. It is through these surveys that we can continue to document the need for continued research and the need for pesticides to our legislators and granting institutions. A number based on survey results carries weight.

I want to thank everyone who participated in my Phytophthora root rot survey and in advance to all for filling out my 2007 Pest Management Survey. 🌲

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