

PEAR THRIPS DAMAGE AND IMPACT ON THE VERMONT SUGARMAKER

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I am a sugarmaker from southern Vermont. I became a sugarmaker because I wanted to establish a long-term project on my property from which I could make a living. The trees on my land are very healthy, as evidenced by the high volume of syrup I am able to produce. I have noticed the thrips damage for a number of years, but didn't know the cause until 1987. I would like to give you a brief history of what I have observed.

We had seen signs of maple decline as early as 1982, with smaller leaves and twig dieback throughout the tree canopy, and we had always thought it was caused by acid rain or maybe aphids. The first time I saw foliage damage was in 1984, and at that time I, like many others, thought it was frost damage. In 1985 after the leaves began to expand, I again noticed foliage damage, characteristic of thrips. There was about 50% defoliation in the sugarbush adjacent to mine, but interestingly damage was light on my property. Looking back now I am sure the damage was caused by thrips.

As Dr. B. L. Parker reported, damage in 1986 was very light. In 1987, I was cleaning tubing late in the spring, at about the time the buds were beginning to break. We had an outbreak of Norway maple aphid that year and I opened up one of the buds and out came a thrips- by then I had heard of pear thrips. I found about 1-2 thrips per bud that year and defoliation was fairly heavy.

This past spring (1988) I had a record syrup crop. I made 2,000 gallons of syrup from 5,000 taps, i.e., more than 1/3 gallon of syrup per tap, which is very good. This shows that my stand is very productive, one of the most productive in the region. Because of the aphid outbreak in 1987, I started inspecting my trees for aphids in early spring, but all I found was thrips. I contacted our local forest protection specialist, Barbara Burns, from the Vermont Department of Forests, Parks and Recreation, to ask her what to do. She said we would have to wait for the buds to break to evaluate the damage, but the buds on most of the trees never broke, and defoliation was 100%. Our sugarbush begins at an elevation of about 270 m (900 ft) and extends to the ridge at 390 m (1300 ft). Defoliation was heaviest on the ridge where the soil is shallow and particularly dry.

It is ironic that this major defoliation occurred following such a productive syrup year. I had felt that finally my syrup business was going strong, and then a few weeks later here I was with no leaves on my trees. So what do you do? You try to find the answer of what to do, and if you can't find the answer, you call the media. The local media should be commended for their efforts on this subject. They were instrumental in bringing the thrips problem to the attention of the public.

I'm a man of action. I'm not one to sit still and watch my trees as they decline, and I decided to do something to help my trees along so I could continue to produce syrup. In conjunction with studies on acid rain and twig dieback, the Canadians developed an organic fertilizer (3-6-8 [N-P-K] and 9% calcium) made from dried blood, bone meal and calcium to help sugar maples. I decided to follow their recommendation and bought a tractor trailer truck full of the material. I was the first in Vermont to fertilize land aurally. The fertilizer was applied to about 40.47 hectares (100 acres) of my sugarbush at the end of May, just as the trees were beginning to refoilate. Unfortunately it didn't rain for six weeks after the application, so it took longer for the fertilizer to enter the soil, but I believe it helped. I am not a scientist, and I didn't do a survey scientifically, but I believe the refoilated leaves on my neighbor's property were significantly smaller and lighter green than those on my

trees. In fact the foliage on my trees looked better than they have in the last four years. This fall I did a root starch test, and the results came out very well. I hope that with the help of fertilization I will buy time for my sugarbush, until the scientists can develop methods to manage this pest.

I think I can speak for most sugarmakers in Vermont when I say we are uncertain what course to follow after the 1988 thrips outbreak. To keep syrup production up we need to tap the trees more heavily, yet many sugarmakers are not tapping their trees at all this year because of the stress caused by last year's thrips defoliation. I had big plans to expand my syrup operation this year. I have just gotten married and I'd like to know what my future in syrup production will be. But for now I am waiting to see; it will be another year or two before we really know what impact these insects will have. I plan to fertilize again next year, but I am wary of the use of pesticides because the water for my home comes from the sugarbush.

I compare sugaring to final exam week in school. You work very hard for six weeks and then clean up. You are so exhausted you don't go into the woods for awhile. The thrips outbreak has changed all that for me. I now realize that we sugarmakers need to keep a closer watch on our trees. We also need to work more closely with our entomologists and help them by making observations of what is going on in our stands.

Discussion Period

Question: Does fertilization seem to help the health of the maple tree? I wondered if this fertilization is preceded by soil testing. Are these factors in the soil hostile to the survival of pear thrips?

Crocker: I don't know whether fertilizers are hostile to thrips. I did test the soil for pH, and it was about 5.4. I don't know specifically whether the fertilizer will improve tree health, but I just decided to jump

to it and try it. I didn't see any harm in applying an organic fertilizer, at least no immediate harm, and any injury would be very minor. However, more care must be taken when applying chemical fertilizers.

Comment: This is an important point. Any application particularly with an inorganic material ought to be preceded with a soil test and a foliage test. There may be serious consequences from fertilizing improperly, such as fertilizing with the wrong element at the wrong time or on the wrong soil type. The literature reporting the results of fertilization of the sugar maple is contradictory. About 50% of them report ill effects or no effect from fertilization, and 50% report positive results in terms of an increase in growth. Therefore, foresters must proceed with caution with fertilization. I wish you had fertilized half of your sugarbush and left the other half untouched as a control. We could have had better answers to the fertilizer question in that case.