

# The 2001 Pest Management Survey

by Jill R. Sidebottom, NCCES

Last spring I conducted a survey among western North Carolina Christmas tree growers on how they control their insect and disease pests and manage their ground covers. I'm in the process of writing a detailed report about the results. But there are some interesting facts, figures, and trends I would like to summarize in this article.

First of all, I would like to thank all the growers that filled out this survey and sent it back. It was rather long – over 50 questions. One grower even wrote on the front cover that they didn't think all the questions were necessary, but I assure you they were. Some of the questions were asked because the US EPA needed information on what equipment growers had available. Others were necessary to learn how hired workers may be coming in contact with pesticides. Many questions were an attempt to learn how growers decide to put out a pesticide. The ultimate goal is to learn if growers have adapted integrated pest management (IPM) techniques that will ultimately reduce pesticide use region-wide.

Why a pest management survey? Dr. Steve Toth conducted a previous pesticide use survey in 1995 at NC State University of what pesticides growers used in 1994. Dr. Toth is the person on campus who evaluates what pesticides are important to growers for all commodities grown in the state. This is a charge EPA has, to learn how people are using pesticides and to not restrict the use of critical pesticides to the economic production of crops. Six years have passed since that survey, and a lot has changed. The biggest is the industry's fight to keep Di-Syston. But EPA will soon review other mate-

rials such as Dimethoate, Goal, Simazine and Atrazine as possible problem materials. It was important to update our understanding of how all of these materials are being used and how growers decide to apply pesticides.

**Who was surveyed?** I obtained mailing lists of Christmas tree growers and nurserymen from 12 County Extension Agents in the mountains. There were 1,786 people on these lists, and I mailed surveys to just over half of them selected at random. Of these, 336 Christmas tree and transplant growers returned their survey with at least some portion of it filled out. These growers represented 14,744 acres of Christmas trees.

**What is the typical survey grower like?** The average Christmas tree grower surveyed did not consider themselves to be a full-time Christmas tree grower. Only 23.8% of growers said they were. About 1/3 said they had a partner on some or all of their trees. The average farm size was 44.4 acres. This is almost twice the size of the 22.7 acres average farm from the 1995 survey. There are 17.9% of growers that have a farm in more than one county. How the business is set up can make it harder to do IPM. If a grower has another job, with fields in more than one county, it makes it harder to find time to scout. If there is a partner involved, pest control decisions may be delayed, or it may be easier to just go ahead and put out that pesticide than to wait to see if it's necessary.

**How are fields set up?** A little over half of growers, 58.5%, grow trees on a 5 X 5 spacing, with 22.4% growing at even closer spacing. 67.1% of growers crosscheck their trees so that trees are evenly spaced in rows both vertically and horizontally. Only 31.6%

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of growers said they had fields set up to have access roads every 10 to 15 rows, which allows for easy spray coverage with a mistblower. And 39.4% of grower interplant young trees among older trees in blocks that have been partially harvested. Growing trees close together with few roads makes it harder to apply pesticides effectively. Interplanting young trees with old allows pests to get on younger trees earlier in the rotation.

**Farm equipment.** What equipment a grower has affects how they can apply a pesticide. Only about half of all growers, 53.5%, have a high-pressure sprayer that is necessary to treat for balsam woolly adelgid. Other growers would have to borrow or hire it done. Mistblowers were owned by just 17.1% of growers. But then only 18.5% of growers have a tractor with horsepower greater than 65 which would be necessary to drive a large mistblower over steep ground. Some growers, 18.1%, have rigged their own spray equipment such as a four-wheeler or small tractor – to apply herbicides and insecticides. Christmas tree growers continue to show their ingenuity!

**Herbicide use.** Herbicide use is affected by people's strategies for groundcover management and also by the weather. The weather in 1994 was wet, encouraging weed growth. In 2000, the weather was drier. However, herbicide use has actually declined in the last six years as people depend more on chemical mowing with Round-Up. Simazine use has dropped 33.4%. That's good news for IPM as Simazine has been detected in groundwater in the mountains. On average, using mainly Round-Up at chemical mowing rates, growers use only slightly over one pound of active ingredient in herbicides, which is very little. But there were some problems. People aren't calibrating their backpack sprayers before applying herbicides – 49.1% of growers say they don't calibrate at all. What ends up happening is that people aren't sure of what rates they are putting out. When trying to chemical mow – suppress weeds and not kill them – the margin for error may be small. I estimated from the survey results that when applying materials for chemical mowing that in 1/3 of the cases growers were applying a rate that was too high for chemical mowing and too low for killing. Better calibration and more attention to spray nozzles would solve this problem.

**Insecticide use.** Insecticide use hasn't changed much in 6 years. Di-Syston use was slightly lower. Growers may be only treating trees as they near market rather than treating all of their trees

in the spring for balsam twig aphid control. More people made treatments for balsam woolly adelgid treatments in 2000 than 1994. Over half of growers also felt like woolly adelgid was worse now than five years ago. Dimethoate use has greatly increased with newer, clearer labels for this product. One wonderful fact is that at least 3/4's of all growers feel like they can recognize the three major pests – twig aphids, spider mites, and woolly adelgid. But, only about 1 in 5 growers are using the treatment thresholds designed to determine if a pesticide treatment is necessary or not. About 2/3's of growers, 69.9%, feel like they are scouting more for pests now than five years ago. But that scouting may not be the systematic kind required to make good pest management decisions.

**Summary.** Integrated pest management takes time, a commodity that for most of us is in short supply. But even simple practices which don't take much time such as calibrating sprayers and writing down scouting notes can help anyone fine-tune their pest control strategies. I'm currently writing a more detailed report about my findings. If you would like a copy, please feel free to call me at 828-684-3562 or email me at [jill\\_sidebottom@ncsu.edu](mailto:jill_sidebottom@ncsu.edu). Thank-you again for your help with this survey, and all your time and interest as we learn together the most effective ways to control our pest problems. My special thanks go to my secretary, Anne Napier. Without her help I couldn't have gotten it done. I also would like to thank John Dorner for developing the computer programs necessary for tabulating the data, Jeff Owen for technical assistance with herbicide rates, Doug Hundley, IPM coordinator for Avery County, and all the County Extension Agents. 

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