

## **“Deck the Halls with Boughs of..” Poison?** *What’s on the family Christmas tree? Probably more than needles.*

**David Orton**

Another Christmas will soon be upon us in Nova Scotia and with it will come the season’s annual rituals. Shopping and department stores will bustle. Kids will make their lists for Santa. Premier Buchanan will go to Massachusetts and present a huge Christmas tree as a gift from the province to “the people of Boston.” Truckload after truckload of less majestically sized trees will hit the highways and head south to the American market. Finally, on Christmas morning, most of us will rush to see what’s under our own trees.

Regardless of what we find there, it could well be that what’s on the tree will, in the long run, be more important to us than what’s under it. If we buy trees raised by Nova Scotia growers we will run the risk of exposure to a whole slew of potentially dangerous chemicals. The use of pesticides is widespread in the Nova Scotia Christmas tree industry and many of them contain some very nasty chemicals.

Christmas tree production is a thriving business in the province, with more than 30,000 acres under cultivation. About 5,000 people find part-time, seasonal work in the industry, while another 1,000 or so are employed full-time. Almost two million trees are harvested every year and 96 percent of them find their way to the American market. Lunenburg County accounts for almost half the province’s production, while Antigonish and Guysborough Counties also export large numbers of trees. Other areas of the province chip in on a smaller scale.

Money may not grow on trees, but there’s a decent dollar to be made in the selling of them. Last year, an unshered tree delivered to the roadside brought growers three to four dollars, while a shered one, which takes more effort to produce and has much denser foliage, commanded a price of ten to eleven dollars.

There’s even a spin-off of the Christmas tree industry – wreath-making. Utilizing poorer quality trees and branches from thinning operations, in some areas of the province it’s a cottage industry. Last year, workers in the New Ross area of Lunenburg County were getting just over two dollars per wreath. By the time they reached their markets in Halifax or the United States, they were fetching twenty dollars.

The question of the level of foreign ownership in the province’s Christmas tree industry is a difficult one to find answers to. In a 1982 written submission to the provincial Royal Commission on Forestry, the Christmas Tree Council of Nova Scotia – made up of large producers exporting in excess of 30,000 trees annually, grower organizations and government forestry advisors – provided no data on this apparently sensitive issue. But under questioning from the Commissioners, Council representatives revealed that about 20 percent of tree production is from American-owned land and that American companies bought “a much larger share also.”

The whole object of this business is to produce a disease-resistant, elegantly tapered tree as quickly as possible. The best trees are about six to eight feet tall and – this is the key in terms of marketability and price to growers – have dense, dark foliage. Overwhelmingly, the species of choice for the province’s growers is balsam fir, although smaller quantities of spruce, pine and Douglas fir are also grown.

Balsam fir is native to Nova Scotia and, if given half a chance, it grows well and profusely here. It can be raised in an environmentally non-destructive manner, but the dominant trend in the industry is in the direction of chemical cultivation. In 1987, the Nova Scotia Christmas Tree Council, the Canadian Forestry Service and the provincial Department of Lands and Forests collaborated to publish *The*

*Christmas Tree Growers' Manual*, and it quickly became a bible for many cultivators. (If you can lay your hands on a copy, it costs \$35 to the general public.) It recommends the use of more than 40 different pesticides to ward off weeds, hardwood growth, various insects and fungi. It also recommends chemicals to control deer, rabbits and mice, but warns that “with many of the larger animals that feed on the larger trees, population control may often be the best answer. This may be accomplished by shooting, trapping and removal to another location, or by poison baiting.” Porcupines, squirrels, spruce grouse and pine grosbeaks are also considered threats to Christmas tree plantations.

Application of chemicals to the province's woodlands is subject to a number of guidelines and regulations. In 1986, the provincial legislature passed the Pest Control Products Act. Posting of notices of intention to spray, no-spray buffer zones along lakes and streams, weather and other restrictions are all outlined, either by statute, regulations or the Environment Department's “Guidelines for the Use, Handling and Disposal of a Pest Control Product.” Although enforcement is very lax – there has never yet been a prosecution against a forest sprayer in the province, in spite of the fact that many violations have been documented – these guidelines and regulations are, theoretically at least, designed to guard against misuse and abuse in the application of chemicals in forestry. But for some reason, Christmas tree cultivation, although administered under the provincial Department of Lands and Forests, is considered, not as forestry, but as an agricultural activity. Growers are thus exempt from the stipulations of the Act. (Aerial spraying *is* subject to some restrictions, but ground spraying, which accounts for the majority of chemical application in the Christmas tree industry, remains essentially unregulated.)

All pesticides can be said to contain three kinds of components – active and inert ingredients and contaminants resulting from the production process. For instance, Round-Up (also called Vision), a widely used herbicide, contains the active ingredient glyphosate, which makes up 41 percent of the chemical's volume. The other 59 percent is made up of inert ingredients. The data available on this pesticide usually concerns only glyphosate; information on the inert ingredients is normally unavailable. It is common practice for pesticide manufacturers to release data that concerns only active ingredients. Inerts may be harmless fillers, they can be poisonous in their own right or they can enhance the toxicity of active ingredients. Some contaminants might be relatively benign, but others can be very dangerous; it has been shown that dicofol, for example, which is used as an insecticide in the Christmas tree industry, contains seven to twelve percent DDT as a contaminant.

Pesticide manufacturers rarely allow access to the raw data on which they base their safety claims. Such information is considered a trade secret and isn't open to any independent scrutiny. This, along with the fact that most of the information available concerns only the active ingredients in any given pesticide, means that full disclosure about chemicals used on our forests is extremely unusual.

When chemicals are used as a primary tool in Christmas tree cultivation, it becomes very difficult to stop using them. It is more “economic” to chemically manage a stand of trees if they are all of the same age, rather than a mixture of trees of varying ages. But disease and insect problems are much more serious in even-aged stands and so require more pesticide application. Use of herbicides to inhibit growth of unwanted plants can result in soil erosion and depletion of organic matter from the soils, causing yet more problems.

People living in the vicinity of sprayed Christmas tree operations should be particularly concerned about the drift of pesticides off-target. The causes of this drift are complex and include evaporation, droplet size, wind speed, air pressure and currents, size of spray nozzle holes, height above ground of spray nozzles and other factors. Pesticide residues have been found all over the globe, even in the Arctic, thousands of miles from their original spray sites. Given all this, the setting of narrow “buffer zones” by sprayers around areas where chemicals are being applied can really be little more than a public relations gesture. And some studies have shown that very little sprayed pesticide ever reaches target pests.

It shouldn't surprise anyone that the pesticide industry thinks the use of its products is great. Their profits, after all, depend on it, and the safety information they release, either directly to the public or indirectly through government departments, is generally promotional. This information usually assumes a particular attitude, one that views pesticide use as the only "realistic" method of pest management. It assumes that anyone with an open mind will come to see that economic, rather than health or environmental concerns, have to take top priority in today's "competitive marketplace." Pesticides are also highly touted because they reduce labour costs.

Not everybody, though, agrees with this outlook. For example, the Cape Breton Christmas Tree Association, in a 1982 submission to the Royal Commission on Forestry, stated that "it is also essential that we develop alternatives to the reliance on chemical insecticides and herbicides" in Christmas tree cultivation, and went on to state the larger question facing all Nova Scotians: "In developing our productive capacity, not only in Christmas trees, but in the entire forest industry, we mustn't risk poisoning ourselves, our land and our environment by the heavy dependence on chemicals of questionable safety. Research into alternatives must be conducted." But in all the information government departments issue on Christmas tree cultivation, there is very little emphasis on these alternatives. Even so, some growers don't use pesticides, instead opting for methods such as letting sheep graze in plantations to combat weed and hardwood growth. This has been done in Cape Breton, where it has helped enrich the soil through fertilization.

Returning to the question of pesticide safety, many argue (and this author agrees with them) that all pesticides used in Christmas tree cultivation have consequences for health and the environment, even if we aren't yet aware of what some of these are. There are sources of information other than manufacturers and government, and these take a much dimmer view of the safety of various chemicals. According to these studies, many of the pesticides used in the Nova Scotia Christmas tree industry are linked to cancer and/or birth defects, while others are toxic to birds, fish and bees. Growers, harvesters, retailers and wreath-makers who handle sprayed trees are all at risk. And the potential dangers to a tree buyer are magnified if he or she takes it into a warm, well-insulated house.

**The Christmas Tree Growers' Manual** also recommends the use of nitrogen fertilizers which can increase the density of foliage by ten to twenty percent and bring about a darker green colour. (Pine trees, when sold as Christmas trees, can have their colour altered by the application of a green dye.) Growers are advised to apply up to 275 pounds of fertilizer per acre. This material is soluble in water, and can lead to contamination of wells and groundwater by nitrates. Indeed, this has already occurred in the Annapolis Valley, where nitrogen fertilizers are heavily used in farming operations. Last January, the Halifax newspaper the **Chronicle-Herald** warned in an article that "nitrates reduce the ability of red blood cells to carry oxygen, causing shortness of breath and eventual suffocation. Infants and young children are particularly vulnerable and may develop an acute condition called methemoglobinemia or 'blue baby.'" Nitrates have also been implicated in cancer formation. Many pesticides, too, are water-soluble and apt to cause groundwater contamination.

Given all this, it is obvious that Nova Scotians concerned about current practices in the Christmas tree industry are on solid ground. There are a number of ways we can counteract the trend toward increased chemical use in the industry. The first and most obvious step is to ask, when we are buying a tree, whether it has been sprayed, and to buy only organically raised ones. We can also lend support to organic growers and encourage them to oppose the dominant trend in their industry by developing an "organic certification" program that would guarantee to consumers that their trees are chemical-free. We can join the many people in the province who have come together to oppose chemical spraying in their communities and to insist on their right not to personally suffer the consequences of toxic pollution caused by others, whether the sprayers concerned are involved in Christmas tree cultivation or any other

activity.

As Christmas approaches, we will be bombarded by a media barrage cautioning us about the need to keep safety uppermost in our minds over the holiday season. We will be warned about the dangers of indulging in too much food and drink, the perils of poor electrical wiring, the idiocy of driving while impaired and the particular risks of fire during the Christmas period. This is all to the good and is to be applauded, but most media outlets will remain silent about the dominant practices of our Christmas tree industry, and many uninformed consumers, when they take home the family Christmas tree, will be bringing a kind of Trojan Horse into their living rooms.

Let's try to put an end to it. Spread the word.

### **Compliments of the Season**

The following pesticides are recommended for use by Nova Scotia Christmas tree growers. Unless otherwise noted, they are taken from the 1987 **Christmas Tree Growers' Manual**. The names listed below are chemical, rather than trade or product names.

Herbicides: asulam, glyphosate, hexazinone, amitrole/simazine, simazine, 2,4-D. Recommended for use in balsam fir seed or transplant beds: dazomet, chlorthalidimethyl, diphenamid, varsol, trifluralin.

Insecticides: diazinon, dimethoate, insecticidal soap, malathion, miscible oil, carbaryl, oxydemeton-methyl, chlorpyrifos, trichlorfon, fenitrothion, bacillus thuringiensis, acephate, permethrin, dicofol, pyrethrins, lindane, methoxychlor, petroleum oil. Recommended for use in balsam fir nursery beds: chlordane.

Fungicides: chlorothalonil, maneb, benomyl. Recommended for use in balsam fir nursery beds: thiram, captan, captofol.

Wildlife Pesticides: Thiram-based "taste repellents" are advocated for use against deer and rabbits. Zinc phosphate, which, the **Manual** notes, is "extremely poisonous to humans" when mixed with "methyl green dye" cracked corn and vegetable oil, is recommended to repel birds and to poison mice.

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