



# Cinara Aphids on Christmas Trees in North Carolina

## Introduction

*Cinara* are a group of several species of large brown or black aphids that feed on many conifers including Fraser fir and white pines. Each species of aphid feeds on a particular host.

In most instances, *Cinara* aphids have no apparent effect on Fraser fir Christmas trees. They are easy prey to predators such as ladybugs, and usually disappear after several weeks. However, *Cinara* aphids can promote the growth of sooty mold, a black fungus on the foliage growing on the honeydew, excrement produced by the aphids. In rare instances during years of drought, extremely high numbers of *Cinara* aphids feeding on trees before bud break can reduce terminal growth and produce smaller, yellow-green needles on the upper whorl of branches. However, by far the greatest cause for concern with *Cinara* aphids is that they are a nuisance to consumers once the Christmas tree is set up in the home.

*Cinara* aphids survive temperatures well below freezing, thriving in cold weather when few predators are present. Consequently, live aphids are sometimes found on trees at harvest time. With warmer temperatures indoors, these aphids become active and start to reproduce by having live young. As the tree dries out, the aphids crawl from the tree to decorations, gifts and furnishings. Due to their large size, consumers often mistake them for ticks. Though *Cinara* aphids do not bite or sting, carry diseases, or feed on any other type of plant besides firs, they do leave a purple stain on fabrics when squashed, making them a costly mess.

***Cinara* Aphid Appearance.** *Cinara* aphids are some of the largest aphids found in the world, *Cinara* aphids are usually dark in color appearing brown to black. The young are smaller versions of the adult.

*Cinara strobi*, the *Cinara* aphid found on eastern white pine, has white spots on the rear of the abdomen. *Cinara* aphid eggs are black and oblong and are found singly on the base of the needles.

***Cinara* Aphid Lifecycle.** As these aphids are not widely studied, not much is known about the lifecycle. Like most aphids, *Cinara* aphids produce live young which allows a quick build up of the population. Commonly found in an aphid colony are a few large aphids found with many smaller ones. These aphids also lay eggs on needles in the fall. Eggs have not been shown to hatch when moved to warmer temperatures in a house or greenhouse, and probably require a day-length trigger. Egg production is not common in western North Carolina.

**Where *Cinara* Aphids Are Found.** The *Cinara* aphids typically live in large colonies of up to several hundred aphids. In the spring, *Cinara* aphids tend to congregate on the terminal, trunk, and upper whorl of branches. In the fall, perhaps because of cooler temperatures, *Cinara* aphids are more commonly found lower on the trunk and on the lower branches where they are hidden from view.

Trees harboring *Cinara* aphids can be of any size. There may be only a dozen to several hundred trees with aphids while the rest remain

aphid-free. Trees with aphids are often found in sheltered areas along wooded field edges.

**Scouting for *Cinara* Aphids.** *Cinara* aphids are not easy to spot in a field. A little like finding a needle in a haystack, growers can still be on the lookout for *Cinara* aphids whenever they are in their trees and scout for them specifically in the fall.

Always carry flagging tape in the field to mark aphid-infested trees. Whenever aphids are observed, flag that tree, and examine adjacent trees to determine the extent of the infestation. Train all Christmas farmworkers to recognize what *Cinara* aphids look like, and encourage everyone working in your trees to mark infested trees. If aphid colonies are observed in the spring or summer, they will most likely be gone by fall, making an insecticide application unnecessary. However, be sure to keep an eye on the colonies, checking them once a month to determine if they are expanding or not. In most instances, *Cinara* aphids will disappear from a field in a few weeks or months and not be found again. It is possible that the aphids may inhabit a field for a year or more, making insecticide applications necessary if trees are to be harvested.

To look specifically for aphids in go-to-market trees, scout fields in September and October for aphids. Walk through trees in a random pattern, looking for aphids on the terminals and trunks and for wasp activity. Wasps and yellow jackets are attracted to the honeydew excreted by the aphids. If they are observed flying around foliage, look closer to determine if aphids are present. Beat the foliage lower in the canopy over a beater board to dislodge aphids.

Even with careful scouting, *Cinara* aphids can still be missed. The final strategy for finding *Cinara* aphids is to be on the lookout for them during harvest. Train all employees harvesting trees what *Cinara* aphids look like. Also, tell employees to look for aphids if they find any purple stains on their hands or gloves while handling trees. *Cinara* aphids when squashed will leave a purple stain similar to pokeberries. If these stains are found, look closer on trees for aphids.

*Cinara* aphids can also be observed in trees put on a tree shaker. Though shakers will not remove all the aphids, some will fall out.

**Control of *Cinara* Aphids in the Field.** If *Cinara* aphids are found in the fall on trees to be harvested, treat with an appropriate insecticide as soon as possible. The only thing that makes *Cinara* aphids difficult to control is if they are found back in the canopy of tree. Any good insecticide will control them if coverage is adequate. Using a high pressure sprayer will ensure adequate coverage. An airblast mistblower may not if trees are large and dense.

Choose an insecticide that does not have a long residual to reduce problems with worker exposure or pesticide residues on the harvested tree. For instance, a product such as Talstar (bifenthrin) is odorless and a commonly used household insecticide, with few health problems associated it. Treating at least two weeks before harvest should alleviate any concerns about worker exposure to pesticides.

#### **Control of *Cinara* Aphids on Harvested Trees.**

If aphids are not observed until trees are harvested, control is more difficult. Treating harvested or baled trees is often not effective. Also there is the risk of exposure to pesticides among workers and customers. Infested trees should be isolated. They can be washed with water to remove aphids. They can also be treated with an insecticide, and left to dry for several days.

#### **Control of *Cinara* Aphids on the Tree Lot.**

Christmas tree lot operators should also be aware of the possibility of finding *Cinara* aphids on their Christmas trees. Teach anyone working on the lot to be aware that if their hands or gloves have purple stains, this may indicate that *Cinara* aphids are present. Shaking every tree before it leaves the lot will help identify trees that are harboring *Cinara* aphids. Washing trees with a water hose before they are set up for display will also dislodge aphids, identifying problem trees. Washing trees will also remove dust and pollen, common allergens, for the consumer.

If trees are identified with *Cinara* aphids, tree lot operators should inform the grower they purchased the trees from. Trees can be treated with a household insecticide, or insecticidal soap. Use caution when applying flammable materials to cut trees. Carefully observe trees over a couple of days to see if any more aphids are found. If not, trees can be made available for sale.

**Control of *Cinara* Aphids for the Consumer.**

In many instances, customers have already purchased a tree, set it up in the home and decorated it before *Cinara* aphids are discovered.

If possible, treat the tree where it is standing with a room fogger insecticide. Use caution when applying flammable materials to cut trees. Be sure to disconnect any lights or ornaments that use electricity before treating. Trees can also be treated with a household aerosol spray insecticide or insecticidal soap. Vacuum up any aphids that are on furnishings with a vacuum cleaner that does not have a beater bar. Do not squash or smear aphids as they will leave a purple stain. If after treatment aphids reappear, remove the tree from the home.

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Original September 2005. Update November 2009

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