I want to let you know about an upcoming NCSU Area Christmas Tree Field Day. This workshop (in Jackson Co.) will be held on Tuesday July 19th from 1:00 - 3:30p.m. or so at the Fowler tree farm in the Panther-town area of Cashiers. We will gather first off at the Fowlers old farm house (white) on Breedlove road.

Our featured speakers will be:
Dr. Jill Sidebottom - NCSU IPM Conifer Specialist
Jeff Owen - NCSU Area Christmas Tree Specialist
Bill Glenn — NCDA & CS Marketing Specialist

Jill Sidebottom will cover the following from her latest trials:
- Cryptomeria scale (a new pest)
- Scale control
- Systemic pesticides i.e., Safari and Movento
- Pest Update
- Algae control

Bill Glenn will update us on the current Christmas tree market and offer tips/insights to promote your trees.
Jeff Owen will cover and demonstrate tips on shearing.
Charles Fowler will discuss Jackson County Christmas Tree Association’s exciting new marketing projects.

If you have any questions or plan to attend, please register/contact me at my office at 828 586 4009 or e-mail christine_bredenkamp@ncsu.edu

Meetings for the Jackson County Christmas Tree Association (JCCTA) are held the first Tuesday of each month at 7:00 p.m. (except in July) in the Cashiers Library. Our next upcoming gathering will be Tuesday, July 12th.

Things are happening! Recently, the JCCTA set-up a booth at Greening Up the Mountains. Booths at additional fairs & shows are in the works. The JCCTA has a new logo, banner and a website in development. Our marketing/advertising committee is researching on where/how to advertise our wholesale and retail growers. Join us, learn more and share your ideas! All growers in our region are welcome! Please come as your input is vital for our success! For more information contact Christy at 828 586 4009, 828 488 3848 or e-mail at christine_bredenkamp@ncsu.edu.
So Why do Spider Mites Crash on Fraser Fir?

It brings to mind a car crash but of course that’s not what I’m talking about. I’m talking about a healthy, reproducing population of spider mites that goes into a sudden decline.

I hope you’ve been able to witness it happening, because it gives you a good feeling. After all, you are getting free pest control. For once, nature is being a help instead of a problem. But how does it work?

Spider mite numbers decrease for a number of reasons, but it usually revolves around the weather. Spider mites like it hot and dry. Why? The warmer it is the faster they mature and reproduce. They also prefer dry weather because wet weather keeps most of their eggs from hatching. Sometimes you’ll even see the mite eggs and even the mites themselves turning black as a fungus consumes them.

But humidity also plays another role. The predatory mites that feed on spider mites do better in humid conditions. So wet favors the good bugs (predatory mites) and dry the bad bugs (spider mites). For more predatory details click www.uvm.edu/~entlab/Greenhouse IPM/Pests&Beneficials/PredatoryMites.pdf

We’ve already been seeing spider mite numbers rise and fall this spring in Fraser fir fields in western North Carolina. There are still a few eggs present in some of these fields which might allow the spider mites to come back later on in the summer or fall. In fact, if the fall is dry that is when spider mite numbers really tend to rebound, making them a problem on harvested trees. But for some of these fields, no further action will be necessary.

So how will you know if spider mites are rebounding? You scout, of course. Scouting for mites doesn’t have to be a lot of work. Just going out and checking a few trees every month or six weeks -- especially those prone for mites -- will help you keep track of their numbers. Look at some shoots with a hand lens. That’s the best and easiest way to look for mites. If you find high number and treatment is deemed necessary then the method of applying a pesticide will determine how well it works just as much as the material that is chosen. In Christmas trees, tractor-driven air-blast mistblowers are the fastest way to apply pesticides. However, the coverage is not always adequate to control spider mites. Having access roads every 12 to 15 rows and treating from opposite sides of the block will aid in getting good coverage. Be sure to scout after application and especially in the middle of the field where the pesticide may not have been applied heavily enough.

The best foliar applications are made with high-pressure sprayers and a hand-held gun. Don’t treat trees as you would for the balsam woolly adelgid. Create a fog instead of a straight-stream using pressure lower than 200 pounds per square inch. For spot treatments or for growers who do not have many trees, a back-pack mistblower is a good way to apply miticides.

Miticides

**Avid** - Abemectin - This miticide is quickly absorbed by the plant and kills the mite as it feeds. Since it remains in the plant for 2 weeks or more, it should kill any mites that hatch from eggs, even though it has no activity against the egg itself. The material paralyzes mites by increasing the release of the inhibitory neurotransmitter gamma aminobutyric acid (GABA) from nerve terminals inside the pest. After spraying, mites may appear normal, but they cannot feed or cause damage and within a few days they die. However, field control has been mixed in western North Carolina. Controls only the spruce spider mite.

**Cinnamite** - Cinnamaldehyde—This material kills mites on contact. Eggs are not affected. To achieve good results, two applications made 10 to 14 days apart will be necessary. Also has some activity against the balsam twig aphid.

**Dimethoate or Cygon** - Dimethoate Chemical family: organophosphate - This is a nerve poison. It does not control the mite egg and needs to be reapplied in 10 to 14 days if mite eggs are present when trees are treated. It also controls the balsam twig aphid, hemlock rust mite and elongate hemlock scale.

Miticides continued on p.g. 4
How to Shear: When shearing a Christmas tree, attention should first be given to selecting and cutting the leader. This is done best with hand clippers. Next, the first whorl of lateral branches is pruned to set the taper of the tree. Usually the cone, defined by the height of the leader and the width of these lateral branches, provides the taper for the entire tree. The sides of the tree can then be sheared with a knife following the line of taper already established in the top. Corrective pruning may occur at the same time or later by an expert crew.

Working the Leaders: There are several factors involved in setting the top of a Fraser fir Christmas tree. Choosing the best leader from several competing vertical branches will provide the straightest leader and most uniform branching next year. The natural cut length of the leader will determine the taper and density of the tree and influence the number of years until harvest. Terminal bud selection will determine the straightness and vigor of next year’s leader. And remember, all these developments are driven by changes in the balance of plant growth regulators (PGR’s) as determined by bud and shoot position on the tree.

Selecting a True Leader: When a shoot emerges from the natural terminal bud of a Fraser fir, it is usually straight with needles and buds growing in all directions around its circumference. When a lateral bud turns up to make a leader, it often has a crook at the base and may not fully straighten. In cross-section, it is shaped like a branch with more needles and buds on the top and sides than on the bottom. Generally, the backside of a turned-up branch -- facing away from the center of the tree -- will have fewer buds especially toward the base. Turned-up branches can produce leaders that behave like branches for two or more years. Such trees often have to be culled due to a very open side and a crooked stem.

When a tree has been topped previously, there may be 2 to 5 vertical shoots to choose your leader from. Distinguish between the “true leaders” and the “branches.” Select the leader that is most circular in cross-section, has the best budset, and has buds furthest down on the backside. Once these criteria are met, pick the true leader that is most vertical and most vigorous. On a tree with normal growth, straightness and vigor are not as important as budset and branch type. Leader straightness and vigor will develop in response to removal of competition – budset and branch type will not. Also, look for the best leader regardless of its position in the top – sometimes a sacrifice of several inches in height is worth the selection of a true leader.

Leader Length: Growers have selected leader lengths on their Fraser fir Christmas trees from as little as 8 to as much as 24 inches. If there were an average rule of thumb for leader height, it would fall in the range of 12 inches. Some growers shear all size classes to about 1 foot. Others try to maximize their height growth while maintaining a target density. If trees have good budset, their leaders can be left longer. Perhaps more importantly, longer leaders will have stronger dominance and have fewer problems with horns, turned up branches, or the loss of vigor to a side branch. These problems are more likely to occur when leaders are cut to less than 12 inches long.

The length of leader you can leave is largely dependent on its budset. Trees with heavy budset will fill in even when leaders are long. Trees with poor budset will take longer to fill in the gaps. Trees with poor budset may need to stay in the field an additional year or two. Cutting their leaders back to 10 -12 inches will hold them back and allow more branching to develop in the additional time.

Cutting the Leader: Avoid cutting the natural bud as far into the rotation as possible. It is the most dominant bud on the tree and is most likely to produce a straight leader. Many growers wait until the tree is close to breast-height or about four and a half feet tall before cutting the terminal bud. However, by the fourth year in the field, leaders can grow as much as 36 inches and need to be cut back to the target length (as determined by market goals and budset). Usually, once a tree becomes vigorous enough to be topped, it will be necessary every year thereafter. However, when older trees have short leaders, do not automatically cut the terminal bud off. As with younger trees, the natural terminal bud will maintain hormonal dominance of the leader over lateral branches and horns.

Some growers begin cutting the leader on two-year-old trees based upon a 12 inch rule-of-thumb. Not only are trees kept short, but additional corrective pruning is often necessary. Once the natural terminal bud is removed from the tree, other buds are released from its inhibiting PGR’s. This allows formation of multiple leaders and horns. If the natural bud can be kept on the tree for an additional year or two, the need for corrective pruning can be delayed as well.

Stay tuned for more shearing information in the August - September Newsletter or go to: http://www.ces.ncsu.edu/fletcher/programs/xmas/production-mountains/shaping-fraser-fir-christmas-trees_070609.pdf
Envidor - Spirodiclofen - Chemical family: tetronic acid derivative - Envidor is a limpid biosynthesis inhibitor. It has activity against both rust mites and spider mites and lasts long enough to control the immatures that hatch from the eggs. Use it at the higher labeled rate to control spider mites and the lower rate to control only rust mites.

Sanmite - Pyridaben - Chemical family: pyridazinone - This material, which works on contact, is a mitochondrial electron transport inhibitor (METI), which blocks cellular respiration, causing the pest to lose coordination and eventually collapse. It also controls the hemlock rust mite.

Savey - Hexythiazox - This material controls the mite eggs and immature mites but has little activity against the adult. The pest is controlled when it either walks across the residues on needles, or an egg is laid on the residue. It interferes with the mite’s ability to produce the chitin in its exoskeleton. Either apply this material when about 10 to 25% of the mite eggs have hatched in the spring and no adults are present, or mix with another miticide which doesn’t control mite eggs, such as dimethoate. Controls only the spruce spider mite. Only apply this material once per year.

Talstar - Bifenthrin - Chemical family: synthetic pyrethroid - Talstar has activity against spider mites but not rust mites. It lasts long enough on the foliage to kill the immatures that hatch from the eggs. However, use of Talstar often creates subsequent problems with rust mites.

Thiodan - Endosulfan - Chemical family: organophosphate—This nerve poison is very toxic. It does not control the mite egg and needs to be reapplied in 10 to 14 days if mite eggs are present when trees are treated. Also controls the balsam woolly adelgid, balsam twig aphid, and hemlock rust mite.