



Insectary Notes

May / June 2011

From the Editor

What is that glowing orb in the sky? Could it be the sun? I was beginning to wonder if it was time to find out what a cubit was and start building an ark.

With the constant rain on all our minds, this issue has a soggy slant. The "Disease Focus" has information on the fungal disease, yellow witches' broom, sure to not be the only one that rears its head this year. Also, Gina has written an article on Insect Weather Predictors.

I hope the weather experienced at the end of June is a precursor to the fine sunny days we deserve for the rest of the summer.

'Til next time,

Jacqui

Editing . . . a Rewording Activity



Contents (click on article title for navigation)

Disease Focus

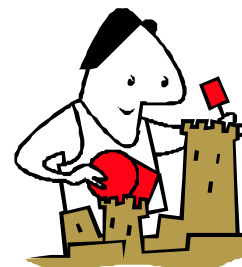
Yellow Witches' Broom Page 2

Provincial Forest Entomologist's Overview

Insects as Weather Predictors Page 4

Bits & Pieces Page 6

The Last Laugh Page 7



Say What and Quotes

The trouble with weather forecasting is that it's right too often for us to ignore it and wrong too often for us to rely on it. ~P. Young

There's no such thing as bad weather, only unsuitable clothing. ~A. Wainwright

A bargain is something you can't use at a price you can't resist. ~F. P. Jones

Never do anything that you wouldn't want to explain to the paramedics. ~Author Unknown

The man who says he is willing to meet you halfway is usually a poor judge of distance. ~Author Unknown

It's annoying to be disapproved of by people who know only half the story - especially when you're not sure which half they know. ~R. Brault

Disease Focus

[Back to Page 1](#)

Yellow Witches' Broom (*Melampsorella caryophyllacearum*)

Introduction

Also known as fir broom rust, this fungus causes abnormal shoot growth on balsam fir. The "broom" is an abnormal brushlike, tufted growth of small branches on a tree. It is described as a perennial broom because it will grow for more than 2 years. Usually not severe, but can be a serious problem in Christmas tree plantations especially when balsam fir is grown on heavy agricultural soils where chickweed is common.

Life History

This rust fungus infects fir buds in the spring and invades the young shoots. The perennial brooms grow slowly the first year and cause only slight, elongated swellings that are very difficult to detect on infected shoots. The following spring, buds on the infected twigs produce upright shoots that are thicker and shorter than normal. Needles of the new shoots are stunted, thickened, pale green and arranged in a spiral curve. Spores form on fruiting bodies that look like small, round orange-yellow blisters.

During the summer, the needles become yellow; in autumn they die and drop off, leaving the broom empty of foliage during the winter. The broom produces a new crop of pale green needles in spring which release spores to infect its alternate host, chickweed. When the rust matures on the chickweed, it releases spores to infect the trees.

Damage Symptoms

Trees with visible brooms. Needles that are stunted, turn from green to pale green to yellow, then die and drop off. Branches affected by the brooms are deformed by galls and cankers.



Fig. 1 Broom on balsam fir, June 2011.



Fig. 2 Upright shoots, stunted needles.



Fig. 3 Fruiting bodies.

Control Options

Large scale control programs in forest plantations are not practical.

Christmas tree lot control would be two-pronged:

- Remove the brooms while they are still small. In the case of large brooms, the whole tree should be removed and destroyed. Also, search for mature balsam fir around the plantation and remove the brooms.
- Remove the alternate host (chickweed) by means of a herbicide.



Fig. 4 Mouse-ear chickweed, the alternate host.



Fig. 5 Mouse-ear chickweed.

CAUTION: Read and follow the instructions on the label when using any control agent. Proper application and use of recommended personal protective equipment are essential for the safe use and effectiveness of any pesticide.

DISCLAIMER: Control options are suggestions only. Actions taken for pest control are the sole responsibility of the applicator in full compliance with any Federal, Provincial or Municipal Acts, Regulations or Bylaws.

References

Yellow Witches Broom of Balsam Fir. 2011. Natural Resources Canada. Canadian Forest Service.

<http://imfc.cfl.scf.rncan.gc.ca/maladie-disease-eng.asp?geID=27>

Yellow Witches' Broom. 2009. NS Department of Natural Resources. Forest Health.

<http://www.gov.ns.ca/natr/forestprotection/foresthealth/sheets/yell.asp>

Provincial Forest Entomologist's Overview

..... What's the Buzz?

Gina Penny

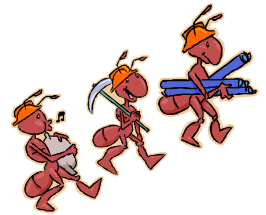
[Back to Page 1](#)



It's official. We've been pelted by rain for almost two months now. Who knows when or if this rainy weather might ever let up? Our insect neighbours that's who. For centuries, humans have used animal behavior to foretell weather and storms. Without the aid of modern weather instruments it was necessary to develop a keen eye for natural "predictors" which indicated changing weather.

A change in the weather means a change in air pressure. Decreasing air pressure indicates the approach of a low pressure area, which often brings clouds and precipitation. Insects and other animals sense the movements in air pressure that precede all weather changes, picking up on subtleties that we often do not. What follows is a selection of some weather proverbs expounding the virtues of insects as rain forecasters.

"If ants their walls do frequent build, rain will from the clouds be spilled." – In preparation for bad weather ants, start building steep dam walls around the entrances to their mounds. These dams stop water from entering the hole. For extra protection they may even cover up the entrance hole. The higher the walls, the more ferocious the rain. So if you notice higher mounds than usual in your yard, it's probably best to head inside.



"When ants travel in a straight line, expect rain; when they scatter, expect fair weather." - Ants follow each others scent trails. During times of high pressure, when the air is denser and sinks, these scent trails will stay close to the ground and the ants have no trouble following them. But when the air pressure lowers, the air becomes lighter and rises taking the scent trail with it. Now the ants must stay closer together to find their way. The lower the air pressure becomes, the closer they must follow one another, and the stronger the coming storm will be.



"The gnats bite and I scratch in vain, because they know it is going to rain" - Black flies make excellent barometers and come out in droves right before a storm. Feeding by black flies is typically restricted to the hours of daylight and dusk. A rapid decrease in air pressure, combined with increased cloud cover, produces a sudden increase in biting activity.

"When bees stay close to the hive, rain is close by" - If it is not close to sunset and more bees are entering the hive than leaving, it may rain soon. Bees cannot navigate far from the hive without bright sunlight as they use it to orient themselves. Before it rains, there are ice crystals in the clouds above, which foul bees' ability to "see." Therefore, like most people, they simply stay indoors.



“Right before a rain butterflies seem to disappear from flower beds.” - During heavy rains and wind, butterflies seek shelter and are rarely seen. Rain not only poses a direct threat of injury or death but overcast skies limit their ability to gather the solar radiation needed to take flight. In order to fly, butterflies must warm their flight muscles to the appropriate temperature, approximately 25-30 °C. When the air temperature is cooler than this, they bask in the sun to warm themselves. This is why on cloudy days you may see no butterflies at all.



Finally, did you know the chirps of crickets can be used to predict the temperature outside! Since crickets are cold-blooded their chirping is temperature dependent; becoming faster with increasing temperatures and slower with decreasing temperatures. Therefore, at least in theory, the temperature can be estimated by counting the chirps.

There have been many equations published, describing the relationship between the number of chirps per second and the temperature. These equations all vary slightly depending upon the species of cricket, but the snowy tree cricket (*Oecanthus fultoni*) is frequently cited as the most accurate at predicting temperature.

To convert cricket chirps to degrees Celsius, count the number of chirps in 25 seconds, divide by 3, and then add 4. Example: $(48 \text{ chirps} / 3) + 4 = 20^\circ \text{ C}$. This equation, however is only good from 13-38 degrees Celsius. Outside that range, the crickets find it too cold or too hot to sing!



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Cardiologist's Diet

If it tastes good . . . spit it out!

Bits and Pieces

[Back to Page 1](#)

Good Luck Terry!

In May, Forest Protection got together to wish Terry White the best of luck as he continues his career with Regional Services.

We know that Terry's job skills, sense of humour, and "can-do" attitude will be appreciated in the Waverley office.

Because Terry does not like traditional cake, we used a little ingenuity and created a cake that would be more to his taste . . . a meatloaf "cake" with mashed potato "icing" and ketchup decoration. All agreed that it was a fitting "see you later" for Terry!



Fig. 6 Best of Luck, Terry!

Good Luck Rob!



And in June, we got together again to wish Rob Uttaro (Risk Services, Wildfire Management) all the best in his retirement.

Although it was a very rainy day, we managed to have a great barbeque and lunch for Rob put on by Forest Protection. Maybe it's fitting that someone who has spent his NSDNR career dealing with wildfires is saluted with a final workday of torrential rain.

We hope that Rob gets some good weather to use his new fishing rod . . . and maybe a day or 2 to mow the lawn!

The Lily Leaf Beetle or the Scarlet/Red Lily Leaf Beetle

(*Lilioceris lili* Coleoptera:Chrysomelidae)

This red beetle is native to Europe and North Africa. It feeds on lily species, lily of the valley, Solomon's seal, and fritillary.

The best way to control them is to prevent introduction into your garden. Check susceptible plants for adult beetles and larvae. Handpicking (although time consuming) can reduce the population and therefore the damage they cause.

Two interesting things about these beasts . . . the mature larvae feed in the open on the upper side of the leaf but predators are deterred because the larvae are covered in a layer of excrement. Also, if you pick up the adult beetle, it may produce a chirping sound.

Reference

Smith, I. 2003. The Lily Leaf Beetle. Pest Diagnostic Clinic. University of Guelph.

<http://www.uoguelph.ca/pdc/Factsheets/Insect/LilyLeafBeetle.htm>



Fig. 7 Lily leaf beetles collected in Digby Co., NS.

The Last Laugh . . .



A curious fellow died one day and found himself waiting in a long, long line for judgment. As he stood there, he noticed that some souls were allowed to march right through the Gates of Heaven; others, though, were led over to Satan, who threw them into a burning pit of fire. Every so often, instead of hurling a poor soul into the fire, Satan would toss him (or her) to one side. After watching Satan do this several times, the fellow's curiosity got the better of him and he strolled over and tapped Satan on the shoulder. "Excuse me, there, Prince of Darkness," he said. "I'm waiting in line for judgment, but I couldn't help wondering why you are tossing those people aside instead of flinging them into the fires with the others?" "Ah," Satan said with a grin. "They are people from Nova Scotia; they're still too wet to burn!"

A man walks into a New York City bank and says he wants to borrow \$2,000 for three weeks. The loan officer asks him what kind of collateral he has. The man says "I've got a Rolls Royce -- keep it until the loan is paid off -- here are the keys." The loan officer promptly has the car driven into the bank's underground parking for safe keeping, and gives the man \$2,000.



Three weeks later the man comes into the bank, pays back the \$2,000 loan, plus \$10 interest, and regains possession of the Rolls Royce. The loan officer asks him, "Sir, if I may ask, why would a man who drives a Rolls Royce need to borrow two thousand dollars?"

The man answers, "I had to go to Europe for three weeks, and where else could I store a Rolls Royce for that long for ten dollars?"



A woman was getting swamped with calls from strangers. The reason? A billing service had launched an 800 number that was identical to hers. When she called to complain, she was told to get a new number.

"I've had mine for twenty years," she pleaded. "Couldn't you change yours?"

The company refused, so she said, "Fine. From now on, I'm going to tell everyone who calls that their bill is paid in full."

The company got a new number the next day.