

Christmas Tree

Newsletter for Growers

Mid-Summer 2011

Plant Nutrition

Tissue & Soil Testing

Soil tests and tissue tests are tools for the grower to help produce optimum growth and quality of trees. Each has its place and value. When preparing a new field for planting, this is the best time to draw a soil sample for lab analysis. Ask for pH, phosphorous, potassium, calcium and magnesium. Typically, trees do not show a response to fertilization of micronutrients so there is no need to test for these nutrients at this time. Nitrogen is a mobile nutrient and a soil test for it is meaningless for long term perennial crops like Christmas trees. However, P, K, Mg and Ca are less mobile and the best time to correct deficiencies is prior to planting. This includes limestone if pH needs adjustment. Obtain a soil probe, then sample randomly, walking in a zig zag pattern. Kick off the first layer with your heel; about an inch, and pull about 8" of soil. Collect no less than half a milk bucket of soil regardless of the size of the field. Mix it, then fill a sandwich bag, writing the details on the bag with a permanent marker.



For the rest of the rotation, or the life of this crop of trees, tissue sampling is the best tool to determine the nutrient status of your trees. Foliar analysis should

be conducted for trees of 3 years of age and older. Samples should be taken in August or September as the nutrients in the needles are reasonably stable at this time, root activity is low and all new growth should now be complete. Strip the needles from the stems of the current year's growth, from 6 to 8 locations in the top third of the tree, with the exception of the leader or any lammas growth. You will need no less than 2 cups of needles. Unlike the soil test, ask the lab to test all foliar nutrients including micronutrients. This is because if you are having mysterious symptoms you cannot rule out deficiencies of any nutrients, and tissue sampling is the best way for diagnosing them.



Soil Testing

TerraLink's Plant Science Lab

In an underperforming field, besides weeds, insects and diseases, there may be a nutritional aspect that is holding back your trees. This is the essence of Liebig's Law of the Minimum, which states that plant growth is limited by the nutrient of lowest availability. It is the same concept as the weak link in the chain.

To know which nutrient is holding back your trees, you need to take tissue and soil tests. These tests also provide the basis for routine planning of yearly nutrient inputs. And it is less expensive than most people believe on a per acre basis. For example, the \$64.95 for a detailed test on a sample drawn from a 10 acre field of your Fraser fir comes to a mere \$6.49 per acre. If not testing for micros, you could use the standard test for \$49.95 and still get the buffer pH of your soil. The price for knowledge is low!



Plant Science Lab

The Plant Science Lab is at our Abbotsford location. It is not only convenient but fast, too. Besides soil testing, the Plant Science Lab also provides testing for pH, soil texture, irrigation suitability and others.

Weed Control

Lontrel 360 Registered



A User Requested Minor Use Label Expansion (URMULE) has been given by the Pest Management Regulatory Agency (PMRA) for control of

labelled weeds in Christmas trees. Specifically it is for use in Balsam fir, Fraser fir, White Spruce and White Pine. It controls Canada thistle, wild buckwheat, scentless chamomile, vetch, alsike clover and common groundsel. Apply as a banded application on either side of the trees, avoiding spray drift contacting the top two thirds of the tree crown.

Rooted in your community.

TerraLink

Helpful Advice

Growing Christmas Trees

Field Preparation

Christmas tree farming is a labor-intensive process. The first-time field should be cultivated to remove grass and weeds. Both woody plants and herbaceous weeds must be controlled prior to planting; this is most often done by application of a chemical herbicide. In addition, some types of fertilizers or soil amendments like lime or sulphur to adjust the soil pH must be introduced into the soil prior to planting. Each species has an optimal pH range for growth, so test before planting. The work done before planting tree seedlings plays an important role in the overall success of a Christmas tree crop.

Weed Control

After the trees are in the ground, work on the crop continues. Animal pests (especially insects) and diseases must be monitored and controlled, and weed growth must also be minimized. Many species of pine and fir require pruning and shearing about four years after planting to maintain the trademark Christmas tree shape. Late or omitted pruning can result in trees that are unmarketable due to large gaps in needle coverage.

From planting through to maturation, every year there are steps to follow to ensure that you have a healthy stand of trees. Late dormancy (winter to early spring) is a good time for pre-emergent herbicides such as: **Devrinol, Dual Magnum II, Goal 2XL, Kerb, Simazine, Sureguard, Princep-Nine T, Casoron G4, or Velpar**. These will control weeds before or as they germinate. **Broadstar, Ronstar, Devrinol** and **Gallery 75DF** are pre-emergent herbicides for container grown conifers.

Both pre and post emergent herbicides may be non-selective so care should be taken to read the labels carefully before mixing and use a directed spray that will not contact your trees. Some post-emergent herbicides include: **Velpar, 2,4-D, Lontrel 360, Post-Ultra with Merge, Credit 45 or Weedmaster**.

Fertilization

Next, an early spring fertilizer application based on your trees needs should be applied. Each species of conifer has different demands on the soil's ability to supply nutrients. Some have lower needs like Scotch pine, while Fraser and Douglas firs have a high nutrient demand. Fertilizer can be applied as a general broadcast application over the entire area or to the root zone only. First application should be applied at least 2 weeks prior to bud-break. Experience has shown that when grass is growing up to the drip-line of the trees, The N rate may need

to be as high as 120 lb/acre. A "general" Nitrogen (N) recommendation of 1 oz. of N per tree per year (94 lb./acre at 1,500 trees/acre). One rule to keep in mind is that all N applications should be completed two or three months before the onset of freezing weather. This insures that the trees have adequate time to "harden-off" before freezing weather occurs. A tree that has had lush growth late in the season is often more likely to suffer low temperature damage than one that has not. Growers often split their fertilizer applications. Apply in March – April and again in late June.

General Fertilizer Schedule based on Tree Age		Ounces of N/tree	
Years	Species Group	Spring	Early Fall
1	All species	1/2	--
2	All species	1/2	--
3	Fraser fir, hemlock, Norway spruce	1/2-2/3	1/3-1/2
3	White, Virginia, Scotch pines	1/2	1/2
4	Fraser fir, hemlock, Norway spruce	2/3	1/3
4	White, Virginia, Scotch pines	1/2	1/2
5	All species	1/2	1/2

Notes: For ages older than 5, continue the 1/2-ounce split application annually until harvest. In fall of harvest year, apply 1/3 oz. of N/tree on Fraser fir and Norway spruce to improve color. Choose-and-cut growers can use tree height to gauge N rate. Apply 1 oz of urea or 2 oz of a fertilizer with approximately 20 percent N per foot of tree height.



TerraLink carries a wide range of field fertilizer blends with or without micros. We have slow or controlled release blends for every nutrient need. Popular tree blends include: **12-12-12 + micros, 18-7-10 + micros (90%CRN), 21-7-10 + micros (60% CRN), 15-8-11 +12S (50% CRN), 18-18-18 +3S, 16-16-16+2.5S +1Mg and 5-20-27**. (None of these blends should be used in the greenhouse or in containers.) Base your fertilizer blend on your soil or tissue samples to match the nutrients you need.

For Conifer seedling growers in greenhouses we offer a line of fully soluble **Technigro fertilizers**. The **Starter blend, 9-45-15 + micros**, has an acidifying effect which is useful where irrigation waters have a moderate alkalinity. The **Growth blend, 12-17-29**

+ **micros** and additional calcium nitrate has higher potassium and iron levels and a relatively neutral pH that are beneficial during the growth phase. Alternatively you could use the 20-7-19. The **Finisher blends, 4-25-35** or **12-17-29** are the best formulas to harden off conifer seedlings, depending on your Nitrogen needs.



Pest Control

Also during the winter / spring months you will want to begin monitoring for pests as well as replanting, shearing and basal pruning (done early in the rotation and only done once).

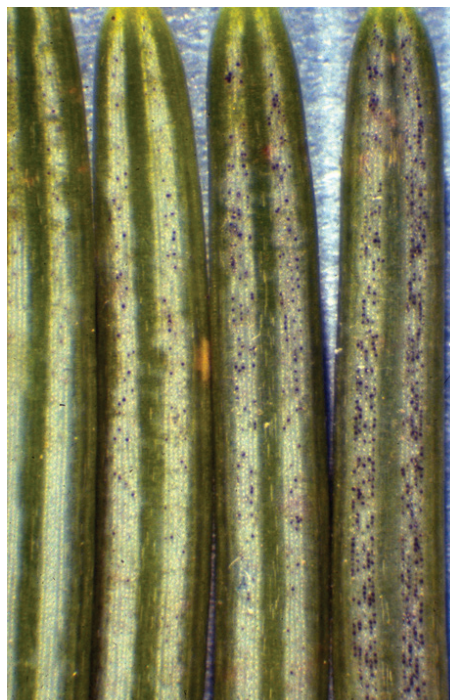
From bud break and the vegetative growth stage of the spring / summer, is when most herbicide, fungicide and insecticide applications are done. Continual scouting and monitoring for pests should be done on a regular basis during the growing season until fall dormancy.

For a list of **Diseases and Insects in BC**, visit the following website, http://forestry-dev.org/diseases/nursery/index_e.html.

Common pests of Christmas trees include but aren't limited to: Various species of Aphids (Spruce Aphid), Balsam woolly adelgid, mites (Spruce Mite), root or shoot weevils (Black Vine Weevil), scale, tip & shoot worms (Western Spruce budworm), webworms, beetles and sawflies. Options for insecticides can be general for many pests or specific to one or two. Ensure you read labels to use the correct spray for the

insects you have. Some Insecticides registered for use on Christmas trees are: **Dyno-mite 75WP, Admire, Floramite, Kanemite, Endeavor 50WG, Orthene 75SP, Lagon, Thionex WP & EC, Ripcord 400EL, Lannate TNG, Tristar, Diazinon 500E & 50W, Foray 48BA, Imidan 50WP, Admire, Sevin XLR, Safer's Soap, Safer's Trounce, Dipel 2X DF & Opal.** Some of these are softer on beneficials than others.

Fungal or bacterial diseases such blights, cankers, shoot & tip die-back, needle casts and root rots can be major problems in your trees if not controlled from an early stage. Unless you are 100% sure of the disease, it is best to get a tissue sample analyzed. Once you have a diagnosis you can choose the correct spray to control or eradicate the problem. Many growers use preventative sprays or cultural controls to lessen disease incidences. General clean up is a good place to start. Fungicides / bactericides may be generic (broad spectrum) or specific so read the labels. Registered products include: **Subdue Maxx, Daconil 2787 & Daconil Ultrex, Echo 720, Copper sprays, Ferbam (Spruce Cone Rust) Funginex DC, Manzate DF and Aliette Ornamental.** Some sprays are also specific to certain tree species so use care. Some fungal diseases have alternate hosts such as bracken fern, various berry crops, goldenrod, aster, fireweed, Labrador tea plus other landscape trees. Remove host species whenever possible. A good website to view pictures of symptoms and damage via the table of contents link is <http://www.na.fs.fed.us/spfo/pubs/misc/xmastree/>.



Swiss Needle Cast

Other pests to be controlled may include rodents and slugs. Traps for rodents may be used instead of chemicals. For slugs and snails, rather than using metaldehyde based products, **Sluggo** snail & slug control is safe to use as it is iron based. A child and pet friendly option.



Balsam twig aphid damage (*Mindarus abietinus*)

Tissue Sampling

Early dormancy (fall / winter) is the time to soil and tissue sample for next year's fertilizer applications. Depending on the age of the tree there are other jobs to be done such as shearing and culturing, tagging for harvest, tree cutting, culling bad trees and general upkeep.

Terralink is your one stop source for your equipment needs. We carry spray suits, gloves, spray masks and cartridges, pruners, fertilizer and granular weed control dispensers and flame weeders to name a few. Take a few moments to visit our website at www.tlhort.com. From there you can type in any of the chemical names, fertilizer blends or general terms into our search bar. We have all the chemical labels and MSDS sheets on our site for your convenience. If you cannot find something you are looking for, please call your sales rep or our sales desk.

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Plant Science Lab



Plant Science Lab

TerraLink's Plant Science Laboratory is right on site, providing faster turn-around times for soil tests. It is a modern, well equipped lab serving the horticultural and agricultural industries.

Through the Plant Science Lab, TerraLink offers the following lab test series:

Test Packages:

- **Standard Soil Test** (pH, buffer pH, EC, N, P, K, S, Mg, Ca, base saturation, moisture content)
- **Detailed Soil Test** (pH, buffer pH, EC, N, P, K, S, Mg, Ca, Zn, B, Cu, Mn, Fe, base saturation, organic matter, moisture content)
- **Irrigation Suitability of Water** (pH, EC, nitrate & nitrite-N, K, sulfate-S, Na, Ca, Fe, Mg, Cl, Mn, hardness, SAR, TDS)
- **Greenhouse Nutrient Solution** (pH, NO₃, NO₂, P, K, SO₄, Mg, Ca, Na, Cl, Zn, Mn, B, Fe, Cu, Si, TDS, salts, hardness, bicarbonates)

Individual Tests:

- pH
- Quick pH
- Buffer pH
- Anions by Ion Chromatography (NO₃, NO₂, PO₄, SO₄-2, Cl)
- Electrical Conductivity
- Cations by Atomic Absorption Spectrometry (K, Mg, Ca, Na)
- Metals by Atomic Absorption Spectrometry (Fe, Zn, Cu, Mn)
- Organic Matter
- Moisture Content
- Atrazine residue
- Pre-Sidedress Nitrate for Silage Corn (PSNT)
- Ammonium-nitrogen
- Molybdenum

For other types of tests, please inquire.

