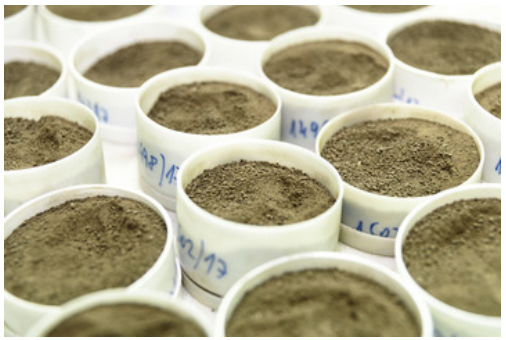
Collecting Seedling and Soil Samples for Evaluation

Ryan Nadel



AUBURN UNIVERSITY
SCHOOL OF FORESTRY AND WILDLIFE SCIENCES

Laboratories for analysis

Waypoint Analytical – Memphis, TN

2790 Whitten Road

Memphis, TN 38133

Toll Free: 800-264-4522

Phone: 901-213-2400

Fax: 901-213-2440

supporttn@waypointanalytical.com

Waters Lab – Cairo, GA

P.O. Box 382
257 Newton Highway
Camilla, GA 31730

Phone: 229 -336 -7216
Fax: 229 -336-7967

info@watersag.com

Laboratories for analysis

Waypoint ANALYTICAL

WATERS AGRICULTURAL LABORATORIES, INC. Since 1976

- Full soil test *
- Greenhouse media test
- Water analysis
- Tissue analysis *
- Nematode assay
- Pesticide residue

*** Be sure your ask for the test and method of analysis you want.**

Soil Samples

http://t1.gstatic.com/images

Soil Sampling

- **Goal:** To collect a soil sample that is representative of a field or portion of a field
- Plan far enough ahead of when you need results.
- Clean all equipment.
- **Only sample top 6” of soil profile**
- Use plastic bucket to collect soil. Do not use brass, bronze or galvanized tools/buckets.
- Stratify area if soil types are different.
- Zig-Zag across field taking 15 -20 samples
- Remove any plant debris from surface.
- If sample is wet, air dry before mailing
- Thoroughly mix samples from each field/unit
- Put sample (~ 1 pint) in bag or box provided by lab
- Code each sample

Sampling Foliage for nutritional Problems

Figure 41.2—*Interveinal chlorosis of red maple caused by iron deficiency.* Photo by John Ruter, University of Georgia, at http://www.bugwood.org.

Figure 41.1—*Chlorosis caused by nutrient deficiency in southern pine nursery.* Photo by David B. South, Auburn University.

Forest Nursery Pests (2012), Agriculture Handbook No. 680

Tissue Sampling for nutrient deficiency

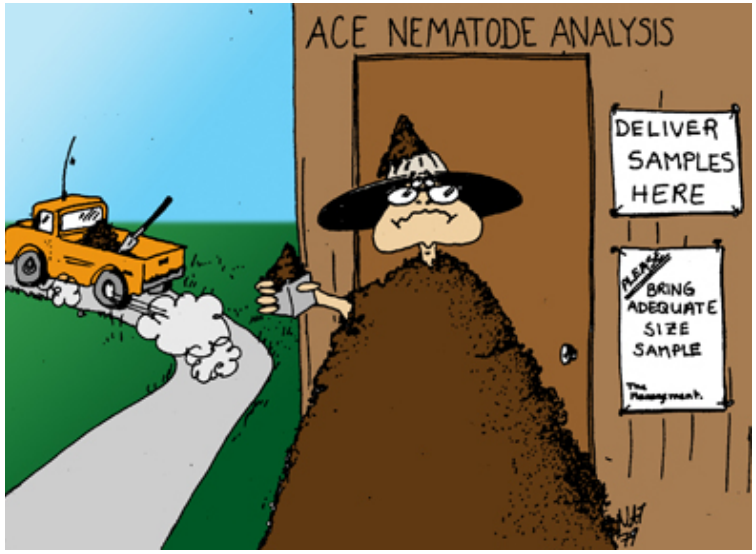
- Don’t sample in the heat of the day, i.e. when plants are moisture stressed.
- Avoid sample contamination from dust, fertilizers, chemical sprays as well as perspiration and sunscreen from hands.
- Rinse foliage with distilled or deionized water and let dry. **Do you want what is <u>on the foliage or inside</u>?**
- Place washed, dry needles in paper bag and send immediately to lab. Never send fresh samples in plastic bags.
- Sample the portion of the seedling which is showing the problem. Grouping healthy and diseased foliage together will “dilute” results.

Tissue Sampling for nutrient deficiency

- Send a healthy sample for comparison
- Take samples from both “good” and “bad” areas. Comparison between the two samples helps pinpoint the limiting element.
- A soil sample may help to complete the evaluation.
- Avoid combining healthy plant parts with unhealthy plant parts.
- Label bags
- Refrigerate or dry if samples can’t be sent to the laboratory immediately, to arrive before the week-end.

Sampling for Nematodes

http://extension.uga.edu/publications/detail.html?number=C834&title=Guide%20for%20Interpreting%20Nematode%20Assay%20Results



http://extension.entm.purdue.edu/pestcrop/2010/issue22/graphic/NematodeSampling.jpg

Sampling for Nematodes

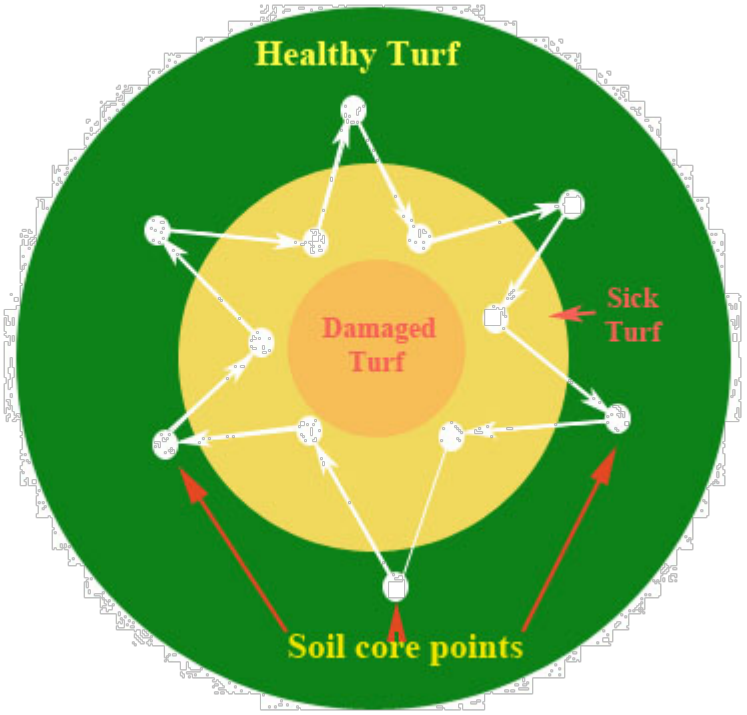
- Population densities of plant parasitic nematodes vary greatly in time and space.
- Although the objective of detection seems simple, a negative result does not necessarily prove absence of the pest, but only indicates that a nematode population where you sampled is below the detection level.
- Sampling should be done before any treatment or management decision is made and before sowing.
- Sampling should occur when nematodes are active and at high populations. (Fall)
- Soil should be moist but not excessively wet or frozen.

Sampling for Nematodes

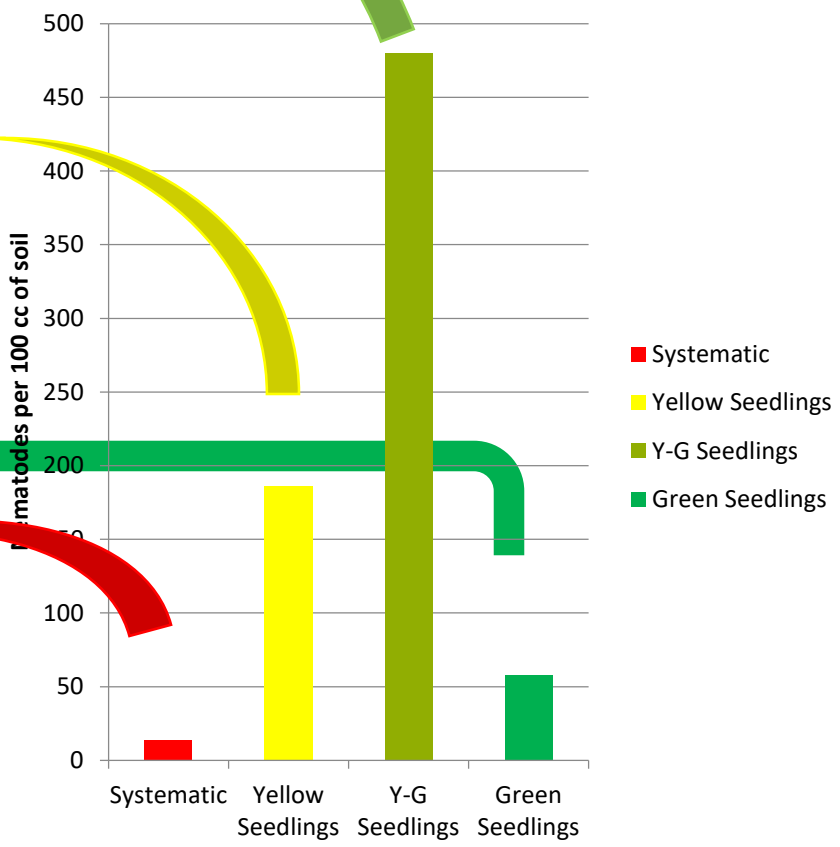
- The precision of the nematode estimates can be improved by increasing the number of soil cores in the sample. This is also less expensive than increasing the actual number of samples sent to the lab.
- When sampling soil during the growing season, it is very important to get the feeder roots of the crop in the soil sample, since this is where many nematodes live.
- Even the most carefully taken samples may yield inferior results if not stored and delivered properly. Keep the sample *cool, ideally at 50 to* 55 F. Do not leave the sample in direct sunlight, car trunk or other areas that may heat excessively. An insulated cooler is convenient for sample protection. Deliver or mail the sample immediately to the processing laboratory. Use First Class, or express delivery and pack well in a sturdy cardboard box or coffee can


2008

Diagram by Ganpati Jagdale



The variability in nematode sampling



Sending Seedlings to the Nursery
Cooperative Plant Clinic @ Auburn University

Seedlings from outplanting

- Do not send seedlings wrapped in wet paper towels. Place seedlings between dry paper towels and then into zip lock bags
- Collect seedlings that are healthy, dying and nearly dead. If you can't peel bark with thumb nail – too dry!
- At least 10 seedlings for each group
- Provide background information (minimum)
  - When lifted
  - When and where planted
  - Soil conditions – wet, dry, bedded, etc
  - If available – site prep data

Seedlings from nursery

- Do not send seedlings wrapped in wet paper towels. Place seedlings between dry paper towels and then into zip lock bags
- Seedlings that are healthy, dying and nearly dead.
- At least 10 seedlings for each group
- Cultural information
  - Date of sowing
  - Pesticide usage information since sowing
  - Fertilization since sowing
- **Send via express delivery** so they are not sitting in a truck or warehouse/depot over a weekend!

Address to send seedlings via express delivery

Ryan Nadel
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602 Duncan Drive,
Auburn,
AL 36849
E-mail: Ryan.Nadel@auburn.edu
Office Tel: +1 334-844-8069