**NE1640 Regional meeting, Hotel Northampton, Northampton Massachusetts, October 24-26, 2018**

Nathaniel Mitkowski presiding and Marisol Quintanilla as secretary.

Those in attendance: Robert Wick (UMASS), Nathaniel Mitkowski (URI), Billy Crow (UFL), Koon-Hui Wang (UHawaii), Jim LaMondia (CAES), Marisol Quintanilla (UMich), George Bird (UMich), Deborah Neher (UVM), Andreas Westphal (UC) and Jim Kotcon (WVU)

Wednesday dinner at the House of Teriyaki, North Amherst.

**Presentations:**

**Robert Wick**: Introduction of his students and Massachusetts. Shared some past publications and a childrens nematode book. His research presentation pointed out that most bionematicides do not work satisfactorily. Indemnify (fluopyram) is effective but *Hoplolaimus* numbers increase. He also discussed *Bursaphelenchus* and pines/

**Deb Neher**: An experimental video presentation was shown to us. It was published in the Journal of Visualized Experiments. Her video is titled “A Plate Competition Assay as a Quick Preliminary Assessment of Disease Suppression”. Authors: Deborah A. Neher, and Thomas R. Weicht. It cost about $3000 to make a video and the website is [www.jove.com](http://www.jove.com). She also pointed out that poultry compost is high in ammonia while vermicompost has higher nitrates and that organic composts contained archaeas; whereas, the conventional composts contained bacteria. Finally, she gave a final short presentation on nematodes for non-nematologist that was full of images.

**Renee** – student of Rob Wick: Gave a presentation on *Meloidogyne naasi*. Population dynamics only have one generation per year. *M. naasi* is found in the North. She also discussed a new and undescribed species in New Hampshire. Males have a large range of sizes. It is a new nematode in grass

**Koon-Hui Wang**: Koon-Hui discussed biofumigation. Oil seed radishes and mustards were tested. The use of black plastic, maceration of the plant material, and tilling (for incorporation) suppressed Root knot and reniform nematodes. The black plastic was left on the soil surface for one week. Mustard controlled both reniform and root knot nematodes. There was less galling with oil seed radish and black plastic. In the second trial maceration of plant material and black plastic was very effective to control root knot. This might have been caused by a greater amount of sulfates. The root knots were *M. incognita* and *javanica.* She showed a Canonical Correspondence Analysis graph. Andreas Westphal commented that radish cultivar is very important for susceptibility or trap crop status for sugar beet cyst nematode control. Koon-Hui continued her presentation and mentioned that her student Philip Waisen found that oil seed radish mulch provides a niche for alternative insect host for EPN’s.

**Marisol Quintanilla**: Presented several trial results for nematode control in crops such as soybean, corn, sugar beets, potatoes, carrots, vegetable survey, apples, and daylilies. In potatoes, there were differences in effectiveness of the different nematicides evaluated. A specific compost called Layer Ash Blend produced by Morgan Composting achieved 100 percent root lesion nematode control in lab trials. This was at 100 % compost concentration and even as low as 5% vol/vol with sand. Chicken manure was second in effectiveness. In soybeans we are evaluating rotations of sources of resistance, seed treatments, and manures to control soybean cyst nematode. In corn we have completed a state wide survey that is identifying plant parasitic and free living nematodes from corn growers throughout the state. In sugar beets, several trials have been conducted that evaluate trap crops, nematicides and varieties to reduce sugar beet cyst nematode, the presentation pointed out the results. In carrots, nematicides were evaluated to control *P. penetrans* and increase marketable yield. In the first year Vydate was the most effective and on the second year no significant difference was found, in apples data on replant research was shown, and in daylilies dips and treatments for planting material to eliminate northern root knot nematode was evaluated. Results of products applied second year field plants were also shown. Greatest control was encountered with plants treated with the standard heat treatment and the treatment with Fluopyram. The extension efforts in all these crops were pointed out and have included about 55 talks to grower groups in extension meetings, webinars, videos, extension publications, news articles, agribusiness training meetings, MSU in-service training session for extension agents, and a website.

**Billy Crow**: Billy started with acknowledging the people in his lab and department, Maria, Tina who works on nematode-Pythium interaction and pointed out that sting nematode can make non-virulent pythium virulent. Ben working in sugar cane, Lindsey a new grad student working on foliar nematodes. He mentioned that since Dr. Mengistu is gone he inherited the nematode assay lab and Laban is in the diagnostic lab. From his trials, he talked about Indemnify and Divanem. The combination of the nematicide and “jungle juice” works very well. He mentioned *Heterodera trifolii* in alfalfa and clover. He listed the different nematogists at the UF with their roles: Billy Crow (turf), Grabau (row crops), DeSaeger (fruits and vegetables), Dickson (retiring in June and amazing nematologist mostly in edible crops), Larry Duncan (citrus EPNs), Giblin-Davis (administration Center Director of Fort Lauderdale Research Center), DiGennaro (molecular nematode/plant interaction), Porazinska (ecology), Noling (retired and not filled). Currently 18 graduate students in nematology. The courses that are taught: Principles of Nematology (DiGennaro), Plant Nematology (Dickson), Field Plant Nematology (Crow), Nematode Diagnosis (Crow), Nematode Morphology and Anatomy (Porazinska), Systematics and Phylogeny (Porazinska), Ecology (Porazinska), Entomopathogenic Nematodes (Duncan), Seminar (whole team). Dr. Tarjan used to do marine nematology. Commodity groups do not have much funding, in strawberries most of their money going to reduce labor costs. Nematology Clinic has an online diagnostic lab that is so practical. Grabau, Crow, and DeSaeger are part of the online N clinic and it fits in objective 3.

**Andreas Westphal**: He outlined some of his work in California: challenges in perennial nematology, cover crops, orchard recycling, anaerobic soil disinfestation. Perennial nematology challenges – in almonds there are several nematode pests, *Pratylenchus vulnus* being one of the most challenging ones because there is limited choice of resistant rootstocks. For *P. vulnus*, is deeply distributed in soil, and can be of highest population density at 3 to 4 ft deep or deeper. Soil fumigation has mitigated damage by plant-parasitic nematodes, and has also helped in reducing the so-called replant problem that occurs when replanting orchard ground with the same tree species. The involvement of microbial contributors to this soil-borne malady has been hypothesized but a conclusive determination of the cause needs to be determined. *P. vulnus* is a problem for almonds and walnuts. Sunnhemp is a potential cover crop that has shown effectiveness against *P. vulnus*. Implementation is partially hindered by its need of 68 F to germinate. *Crotalaria juncea* ‘Tropic sunn’ was tested. In-orchard cover cropping is tested to mid-term suppress plant-parasitic nematodes. Such strategy seems warranted because for example, ‘Nemaguard’ root stock is resistant to root-knot nematodes but is susceptible to root lesion and ring nematode calling for additional nematode suppression strategies.

Orchard recycling and removal – Trees are removed and dried at site, the field is deep ripped, and the dried and ground-up trees are spread on the future orchard soil. This is done at various times relative to the heavy tillage but the residues are typically incorporated, and if indicated 1-3 D fumigation is used after the field preparations.

Anaerobic soil disinfestation (ASD) – The nursery industry is required to ensure freedom of nematode infection of nursery stock. Traditionally, the nursery (and in general the tree and vine) industries have relied on methyl bromide soil fumigation. After its’ phase-out for commercial crop production, 1,3-dichloropropene (1,3-D) is used. Human health and environmental concerns restrict the use of 1,3-D. ASD is currently evaluated as alternative method. To achieve ASD, a carbon-rich substrate is incorporated into the soil, then a drip irrigation system is installed to saturate soil, and soil is covered with plastic totally impermeable film (TIF). High soil moisture saturation is kept for 4 to 6 weeks. Some of the substrates tested are: rice bran, molasses, tomato pomace, mustard seed meal, nut harvest residues, and processing wastes. Rice bran is the most commonly tested material.

**Jim LaMondia**: Covered the topic of cover crops for nematode control and found that millet/Rudbeckia and black oats provide the best control. Black oats, millet/Rudbeckia, Dwarf Essex rape (his treatment number 4) was the most effective. The Dwarf Essex rape needs to be incorporated. He asked the question of what is a good winter cover crop?

He found that sticky tomato is an excellent trap crop for tobacco cyst nematode and I believe he said this would apply to potato cyst nematode.

**Jim Kotcon**: Livestock grassing has an effect in soil organic matter, after 10 years there an 2% organic matter increase. Also found an improvement in soil aggregate structure. Compost increases pH, K, and P. Nematode populations have remained low for 18 years.

He covered information on industrial hemp, and nematode information on this crop is very limited. It is susceptible to both *M. hapla* and *incognita.* In hemp there are problems with seed purity and varieties are not true to type. It is also difficult to grow (photoperiod). Stand establishment is very difficult and seed certification is very important.

**Nathaniel Mitkowski**: The weather for turf was very hot humid and a lot of rain, so this year it was like a swamp and lots of anaerobic soil. When there is that anaerobic soil and the turf is too wet the problems were: Pythium and black layer. In these circumstances all nematodes were dead (likely caused by anaerobic conditions and ASD).

Lance nematodes can be well controlled with chlorpyrifos as non-target effect. Dylox seems to work in a similar fashion. In 96 hours there is a noticeable grass response with chlorpyrifos. President Trump halted chlorpyrifos ban so it is still relatively common. For lance problems in fairways a combination of Divanem (abamectin) and Indemnify (fluopyram) works better with a wetting agent.

Other problems are Pythium, dollar spot, and rapid blight. Rapid blight has been identified in east coast with high salt and temperatures (salt intrusion).

RI has the smallest green industry in US. The most important ag industries are ornamentals, turf, hay, and silage corn. The state is mostly forest and housing. No real food industry in RI but now it has a food center which is trying to develop a new mission. Their objective is sustainable and urban ag.

**George Bird**: He covered his grad student Jeff’s work on cover crops to find a trap crop for Soybean Cyst Nematode. He also talked about soil health and thermoimaging. He suggested that objective 1, 2, and 3 have a website. Dr. Bird reminded the NE 1640 members of the Technical Committee that a website and Extension publication are part of the project, the website can be housed in Marisol’s website if desired. He also suggested writing an extension publication for objective 3 (Bird, Dickson, and Quintanilla)

**Business meeting:** Bird suggested Great Lakes Grand Rapids exposition for objective 3 (extension). He suggested to have 2 workshops, one of fruit and one for vegetables on the Monday of the exposition (December 2019). Conference- North East Crop consultants annual conference.

Where are we going next year? Several suggested Hawaii and Koon-Hui on the previous day seemed to say she would be opened to this. We would have a field trip to Poamoho where we could see field trials in the winter. California is a possible fall back for 2019 and in 2020 Michigan was suggested.

In 2019 Marisol becomes chair? Now currently a secretary.

Report needs to be turned into Nathaniel by December 1st. Nathaniel will send a form for all to fill out. The report needs to focus on milestones and impacts.