NECC-1312 Annual Meeting Minutes, 10-3-17 Laurel Villa Inn, Milford PA

Meeting called to order 1:07. Present Joel Tilley (VT), Bruce Hoskins (ME), Amy Shober (DE), Olivia Saunders (NH), Mike Rutzke (NY), Tracy Allen (MA), Stephanie Murphy (NJ) and Dawn Pettinelli (CT)

General Business:

- Rick Rhodes – sent best wishes a reminder that we need to submit to NIMSS in writing for renewal of our coordinating committee sometime in this next year Request to be submitted to multistate activities committee who would submit our request for approval. Amy asked Karen Gartley (DEL) if she would do it and she agreed.

- Joel will retire in 9 months. Don Ross (VT) in about a year.

- Approved minutes. Amy made motion. Bruce seconded. Motion carried

- Officers: Dawn secretary and CT will host next year.

Websites:

- Updates on website – chapter 4 & 8 sent to Karen by Bruce not published yet but Amy said to send to her and she will post.

- Discussed adding a table of wavelengths for routine analysis. Decided we should so send wavelengths and instrumentation for routine soil extracts to Bruce who will put into table for manual.

- Dawn will update appendix and send to Amy to post it.

- Amy will update NIMSS website with present members.

NECC-1312 potential new members - Agronomist Jared Miller from UDel, Soil Fertility Specialist Gurpal Toor – MD, Agronomist Charlie White Penn State (Doug's former position) Robert Schindelbech – head of Cornell Soil Health Lab, Eugenia Pena-Yewtukhiw (WV)

VT Nutrient Manual for Fertilizer Recommendations – will be updated. (before Joel retires)

- Need updated recommendations since VT, starting to regulate golf courses as well as farms of a certain size.
- In DE, nutrient management plans needed for more than 10 acres of fertilized land and 8 number of animal units.
- Manure nutrient ranges vary, list on ME's website. Penn State probably has values for most types of manures.

P index

- Revised by VT – no major changes but previous version released in 2006. Added tile drainage pathway which had dissolved surface erosion P loss and dissolved runoff P loss over surface – some comes out of tile drain outlet – problem where surface applied

manure and not incorporated, then reduces P index. How good is algorithm? Just starting to collect some data

- VT also had a selection of manure types but used to be weighted the same – now after some experiments with surface applied manure (almost all P in runoff) added biosolids and some others and now weighted differently. Experiments showed different manures did not reduce susceptibility to leaching of P
- Amy published in JEQ – looked at subsurface drainage piece. P index evaluated using load data – from ditches – don't know where exactly flow is coming from – used water extractable P and if high relative to seasonal water table , higher potential for P runoff. Ditch drainage – how to evaluate – based on soil hydraulic class
- In MD can get cut off from applying P due to subsurface or leaching piece. NRCS wants to use subsurface and leaching P. MD weighting faction is the PSC (soluble P coefficient) EPA says to change their P index.
- DE law can go back to crop removal for P. Actually excess of chicken manure - bottom line is P from chicken manure not getting to farmers that need it because brokers don't want to move it that far plus when chicken producers want to get rid of manure it is winter and farmers don't want it yet.

Soil Health Testing

- ME –field of soil health testing getting more crowded and confusing, there should be minimum number of parameters measured in northeast. When evaluating results, some soils will not fit into standardized interpretations so results should be regionalized if want a marketable testing system.
- NY – USDA/NRCS keep going back & forth on what kinds of tests. Really, it is field specific with 2 most important tests being aggregate stability & water holding capacity. Soil health testing is labor intensive and one needs lots of lab space and equipment so regional approach might be best. Maybe even field specific tests and interpretations. Different parameters for different soils in different areas. Other labs want to jump in but doing different tests than Cornell
- Soil health testing is a nice indicator to have but just needs to be done maybe every 5-10 years.
- Biodiversity good but how to monitor? Maybe bulk respiration but kind of funky? Is protein assay valid? Now looking at RNA sequencing to see what microbes present.
- Bioassay – bean test – look at roots after a month – seems quite useful (done in greenhouse – plant in cones) good indicator of disease.
- To measure respiration, what test is best –burst respiration or basal? 50% water filled pore space from top makes for more consistent results – Miller
- NY wicks up from air dry (ground & sieved soil), uses alkaline trap and measures conductivity from alkaline trap – reliable.
- ME - Solvita okay if done correctly. Need aggregates not fine powder because size affects water saturation.
- Soils vary so much regionally – i.e., DE mostly sand, no aggregates or water holding capacity but they irrigate so good yields. So soil health test would be not very helpful in this situation.

- NJ –attended meeting for soil health advisory group which summarized online survey from those involved in soil health testing. Listed 19 parameters of soil health. Also summarized methods being used. Problems with evaluations and interpretations.

4 Important Parameters:

1. Respiration rate – either basal or burst
2. Permanganate oxidizable C – respiration C vs oxidational C
3. N release potential – like ISNT – many analysis
4. Aggregate stability

Conclusions: (ME & NY) There is a disconnect between the research end and the practical end. For the most part, researchers are not farmers and vice versa. The ones that were have mostly retired. The amount of organic matter and the soil pH are key variables for soil health. Soil health evaluations should be field and site adjusted. It was suggested to soil test regularly, monitor the organic matter and do a soil health test every 5 to 10 year. Farmers may expect soil health to change in a short period of time (2 years or so) but really make take 5 or 10.

SERA 17 was going to do a white paper on how soil health affects P. Have not gotten very far. Also, a letter to NRCS from joint groups was never written.

University Support of Soil Labs (NJ)

Rutgers – cost recovery, have to justify expenses, balanced for each unit, etc. At Rutgers, the Agricultural Experiment Station will not cover benefits anymore. Lab pays some salaries and benefits.

ME – lab has to pay for most salary and benefits (85 % +). Exp. Sta. input exchanged for free analysis for graduate students.

Some labs charge for graduate student samples & offer department members a discount.

Some labs do get state or federal funding and some funding from lab. Varies.

Equipment – some grants by multi-faculty for equipment. Occasional piece grant funded. Others funded from revenue from lab. Labs that do research goes up and down so good to rely on extension (home grounds samples) for more steady income. Some like Cornell have mechanism to save funds for new equipment. In DE, one private lab wants to close university lab down claiming competition.

Stephanie (NJ) wants to compile data from all of our labs showing amount of university support so she is asking we send her (no $ amounts) but how our labs are funded, who pays what % of salaries & benefits. How costs of equipment are covered. She will send out a request.

10/4/17

State Reports

VT about the same as last year. Joel has been able to figure out how to put in some more tests into program,

CT – samples down, cold spring. Still working bugs out of Access soil test recommendation program. Still doing a lot of Extension work.

NH – numbers about the same, high tunnel samples about 117. They do research samples not separated in reports, clients get a report template with results, not just a link. Want to generate automatic reminder email for folks who have not submitted a sample in 3 years – need to figure out some logistics – mostly aimed to homeowners – in fall $12 standard nutrient analysis & $17 for nutrient analysis including OM. Database now cold fusion server because old one no longer supported. Samples go to Penn State

MA – up for particle size – demand from construction companies, SME's up, no more compost testing, looking into accepting credit cards and putting PSNT into our data system. Looking to how to replace some older equipment.

MD – $12 commercial. $15 homeowner, all tested for lead, $10 researcher – Joe Pauler is new lab coordinator, CN analyzer broke so samples sent to Penn State, looking to purchase new one. Renovations in 2018 but where will lab go? Joined up with water analysis program, also soil characterization lab. Research – Amy – cover crops, how water flowing in ditch system to understand movement of P in field. Equal distribution of applying poultry litter – needs to go where it is needed. Anyone who applies fertilizer commercially in Del has to be certified. Amy does trainings.

NY – Cornell mostly research, BOX spreadsheet program so can tract sample numbers. Surplus budget for last 4 years – no more debt – now soil health lab on its feet and now separated from SNL. Both manage own finances (3000 samples to soil health lab last year). Sample volume somewhat stabilized annually. Lots of R & D & innovation. Plant sap analysis test – used to analyze calcium in apples for bitter bit. Phenotyping research for element uptake, want to get an ICP-MS,

ME –calendar year, 2016 record year, 17,000 samples from ME, VT, NY, 500 greenhouse/high tunnel samples, 500 forest soil samples – national park service& forest service research facilities, CO2 burst tests – (nearly 700) highly popular soil biology test. (the Solvita ammonia test (SLAN) has about = results to ISNT) 800 plant samples, 550 petiole, 500 manure samples 125 composts, 4200 prepped samples, 800 combustion samples. Several research projects – several multistate.

Hi P & Homeowner Samples

- What should we do when P and also Om way too high - ? Some of us comment, MA has a fact sheet on (distributed).
- ME sees if too much compost, then not enough nitrate available so N deficiency because N release is too slow to meet plant needs. Can be important issue because of overapplication of compost and P.

Marijuana

- What to do with samples – just the media testing but can't take plant samples or plant disease samples.

Sulfur

- Amy – Quirine, Josh & John info – S concentration decrease in soil over time because of reduced emissions. M3 track trends over time but not necessarily related to plant response – sandy low OM soils most susceptible.
- Other reasons aside from emissions – not enough mineralization from subsoil, weathering, etc.
- Symptoms look similar as N deficiency – but chlorosis in newer tissue growth for S, not older like N, also poor root growth, chlorotic, stunted – for small grains and corn.
- Can use ammonium sulfate but deficiency really shows up where no manure used. Tissue sample for confirmation but too late in season to do anything.
- NY - Sap testing might be good – get 1.5 to 2 mm sap if frozen and squeezed (S .16% is low – probably total wet ash) squeeze with garlic press
- 15: 1 N: S = normal 28:1 shows S deficiency
- Calcium sulfate soil test also does not measure organic sulfur but does correlate with plt response
- 180 line has a calcium interference on it – use 182 line (can't dry ash S as goes off as gas)
- Soil sample collection for S would have probably to take deeper sample. Soils with adequate amounts of organic matter would likely not have S deficiencies.
- General recommendation of 20-40 lbs S/A and 25 -35 lbs S/A applied for grains if known S deficiency fields – S applied in previous years does not carry over
- Elemental sulfur, ammonium sulfate, gypsum, K_2SO_4, Sul-Po-Mag, Aluminum Sulfate & manures are common S fertilizers

Next year meeting – Oct 11 & 12, 2018

Respectfully submitted,
Dawn Pettinelli