**NECC-1312 Annual Meeting**

**October 1st & 2nd, 2015**

**Laurel Villa Inn, Milford, PA.**

***Meeting Minutes***

**Thursday, October 1.** Overcast skies with intermittent drizzle, air temperature in the mid to upper 50s. Rutzke called the meeting to order at 1:20 pm.

**Present:** Dawn Pettinelli, Stephanie Murphey, Bruce Hoskins, Karen Gartley, Mike Rutzke, John Spargo, Doug Beegle, Quirine Ketterings, Joel Tilley

**2014 Minutes**: Minor spelling corrections to 2014 minutes. Approved.

**New officers:** Spargo taking minutes. Beegle and Spargo will co-chair.

2016 is the joint meeting with NCERA-13, NECC-1312, SERA-6, WERA-103. NECC is to host.

**Status of NIMMS NECC 1312 project**: Current project renewal due Sept 30, 2018. No action needed this year.

**Website/Method Manual:** NECC Methods Manual posted on-line currently hosted by UDel Extension. Several chapters have been updated and need to be posted, including: appendix, nitrate chapter, organic matter chapter, lead chapter. Gartley will check on these and update.

Ketterings suggested we review method manual to determine if any of the others need to be update. Ketterings offered to update the CEC and S chapters.

Some interest in posting additional resources (e.g., regionally relevant factsheets, additional methods), links to other resources (e.g., other regional method manuals).

Ketterings suggested that we discuss development of a national methods manual with the other regional committees at the 2016 joint meeting.

**Sulfur:** Ketterings shared results from S response work she completed in alfalfa. Summarized S response and comparison of six different soil S extracts (0.5 *M* ammonium acetate + 0.25 M acetic acid (NH4OAc); 0.016 *M* potassium phosphate (KH2PO4); 0.01 *M* monocalcium phosphate Ca(H2PO4)2; 0.01 *M* calcium chloride (CaCl2); Morgan sodium acetate; Mehlich-3). The CaCl2 and SrCl2 extractions performed best.. An advantage of SrCl2 over CaCl2 is that it can be used to measure exchangeable bases and predict cation exchange capacity simultaneously.

John shared data from an on-going S survey for field corn fields in PA. PA Extension sample 44 field in 2014. Corn earleaf S of approximately 25% of sites tested below optimum. They found no clear separation between fields with a recent manure application or S application and those that had received none. Another 35 sites sampled in 2015. Also conducted 8 corn sulfur response trials in 2015. Results will be shared with the group in 2016.

Quirine suggested submitting a proposal for a multi-state Hatch project to work on S response in corn. All were in agreement. Quirine offered to draft a proposal and initiate the application process.

**MASTPAWG:** Mid Atlantic Soil Testing Work Group met on Feb 10th and 11th, 2015 Richmond, Virginia. John Spargo chaired the meeting. Agenda attached. No minutes. Next meeting scheduled for Feb 9th and 10th, 2016. Spargo will chair again.

**Soil Health Testing:** Ketterings shared data from a recently completed study that evaluated the Solvita Test. Field treatments included various rates for compost and manure. Solvita CO2 rate followed rate of application of C and soil organic matter (LOI).

Hoskins pointed out that there continue to be issues with Solvita precision for check samples based on first two years of NAPT (Solvita included as provisionary test). Challenges include limited lab participation and problem with fine particle size and wetting. Work on-going.

Rutzke provided an overview of the Cornell Soil Health Test. Briefly described physical, biological, and chemical tests. Over the last few years sample volume has increased significantly. The Soil Health Lab continuing to modify and refine testing and interpretation of results.

**High Tunnels:** Hoskins presented data from a preliminary high tunnel experiment investigating tomato response to N (2 rates, +/-) and K (6 or 7 rates, 0 to 1000 lbs K/a). The trial has been conducted for two years in three locations (1 in ME, 2 in NH). No significant yield or quality response to K in the first year at any of the locations due to confounding effects of one of the N sources (soybean meal, which contains K2O). In the second year they used a low K source of Organic N with no additional K applied to plots. Found yield and K response to soil K. Recently awarded a SARE grant to continue the work for three years. Data will be used to validate/update soil test (M.Morgan, Mehlich 3, SME) K calibration.

Hoskins also shared some data looking at soil salt levels in high tunnels by depth. Found significant stratification of salts.

Rutzke shared some preliminary data from a high tunnel experiment evaluating various liquid sources of P and K. Looked at sap tissue levels in response to treatments. Found that nutrient levels in leaves from sucker agreed well with levels measured in MRML. This offers an alternative, less destructive, sampling strategy.

**Adjourned at 4:40 PM**

**Friday, October 2.**  Still overcast skies with intermittent drizzle, air temperature in the mid to upper 50s. Rutzke called the meeting to order at 8:00 am.

**Present:** Dawn Pettinelli, Stephanie Murphey, Bruce Hoskins, Karen Gartley, Mike Rutzke, John Spargo, Doug Beegle, Quirine Ketterings, Joel Tilley, Joseph Heckman

**NAPT, oversight committee representative:** Members of the NAPT Oversight Committee should include one representative from each of the regional research soil and plant analysis workgroups (NCERA-13, NEC-1012, SERA-6, WERA-103). See <http://www.naptprogram.org/about/committee>. There is uncertainty about our representation on the committee. Hoskins term ended in 2014. Spargo was invited to serve, but mistakenly listed as a representative of private labs. Both Spargo and Hoskins have sent Rebecca Polk e-mails to get clarification, but have not heard back. No minutes from the last meeting.

Gartley offered to follow-up with Susan Chapmen at ASA HQ re: NECC representation

Most often heard complaint now is that customer service is missing with NAPT. Additionally, soil properties of samples in NAPT program are not necessarily applicable to eastern US (mostly western soils...give K and Ca issues). We need a coordinated effort to address NAPT challenges. Values for K and P tend to be much higher than typically encountered for routine samples. Current NAPT Chair, Tony Provin, sent survey last spring to participating labs. Each of these issues were raised.

Morgan and Modified Morgan critical mass:Modified Morgan: Connecticut, UMass, Maine, Vermont, DairyOne, CNAL, Spectrum, A&L Richmond, AgriAnalyses(?), Brookside. Morgan: AgroOne, CNAL, Maine, SoilTest (Washington), International Ag Labs. Spargo will check at the MASTPAWG meeting to see if this list is comprehensive. Several labs participating in both ALP and NAPT. Discussion among labs would be good to see if we all join one program we can create a critical mass, ALP or NAPT. “Sometimes better to have a responsive dictator than a dysfunctional committee,” Rutzke. Possibly an agenda item at the joint meeting next year.

**Nitrogen and CSNT:** Ketterings discussed results of recently completed studies related to corn stalk nitrate sampling protocols for harvest and post-harvest processing. An alternative sampling protocol was developed (between 2 and 8 inches above the ground rather than between 6 and 14 inches) but this requires lab staff to recognize the shorter stalks to divide final results by 1.5 prior to reporting back to clients (so interpretation scales are kept consistent between both sampling methods). A new adaptive management approach was introduced in New York (<http://nmsp.cals.cornell.edu/publications/factsheets/factsheet77.pdf> documents the four options and <http://nmsp.cals.cornell.edu/publications/factsheets/factsheet78.pdf> shows the adaptive management option).

Ongoing CSNT work is evaluating if yield maps (yield monitoring to determine within field variability) can be used to shift to more meaningful, targeted CSNT sampling. Fields are being sampled with this targeted approach (samples collected in low, medium, and high yielding areas, based on last year’s yield map). This project will continue for another year to collect 2 and 3-year yield maps so yield stability maps can be generated. EC and active canopy sensors are also being investigated to establish sampling zones.

Another factor to consider using stalk K as an indicator of corn stress in order to identify cause of excessive CSNT values, either low yield of excessive N. Ketterings shared some preliminary data that suggests that where sites where yield response to N is limited due to environmental conditions (drought or excessive moisture), stalk K appears to be lower. This has potential to help improve interpretation of CSNT results.

**Vermont update on P index:** On-going evaluation of NRCS STEP tool to evaluate farms receiving EQUIP funds.

NRCS has expressed some concern about allowed manure P application on fields with *high* P index. Current 590 allows for P applied equivalent to P removal.

Ketterings shared some information about the NY P-index. NY is part of on-going CIG grant with several other Bay states to evaluate current P-index. NY P index includes both dissolved and particulate losses Loses = source x transport. Survey of practitioners revealed that they felt that all source and transport factors currently used are important. Majority indicate that manure is generally the culprit. Planners indicated that they feel other BMPs that should be included cover crops, crop residue, and buffer (more explicitly). A revised P-index currently under consideration/discussion more explicitly focusses on transport risk first, and attaches a management recommendation after transport risk is identified. Additionally, BMP credits are more explicitly used to calculate transport factors. Now have a HUGE spreadsheet with Transport factors + BMPs and source factors to evaluate implications of practices on risk of P loss. Under discussion with partners in NY.

**Whole Farm Nutrient Budgeting:** Ketterings summarized recently completed work in New York with dairy farms. Research team calculated mass balance as lbs nutrient/tillable acre and lbs nutrient/cwt milk. Initial benchmarks for N, P and K established based on dataset consisting of 102 farms.

By plotting the relationship between nutrient balance and milk per acre, overlaid with cwt milk, one can identify farms that are in the “Optimum operational zone” versus those that exceed the feasible balances.

Benchmarks roughly coincide with an animal density limit of 1 au/acre if no export of crops or manure takes place. By looking at farm characteristics (e.g. on-farm feed production) can predict +/- balance. Good correlation with animal density but use of animal density alone to determine benchmarks marks opportunities by farmers to improve their balance through manure or crop exports.

Work is summarized on SPEAR website (<http://nmsp.cals.cornell.edu/NYOnFarmResearchPartnership/MassBalances.html>), workbooks, refereed and Extension publications.

**Discussion of K:** Heckman led discussion of K. It has been some time since NECC concerned itself with K. Heckman summarized key suppositions presented by Khan et al., 2013, *K Paradox*, Ren. Ag Food Systems. For example, the lack of predictive value of soil test K for predicting K need. The authors challenged the *build and maintain* approach to making K recommendations.

**State reports**

* *Delaware*:

*Research –* Sims is retiring this year. Shober is working on a number of projects: Si work in wheat, N use efficiency; CIG P-index project.

*Lab* – business as usual. The lab is planning to purchase a new ICP this year.

* *Rutgers:*
* *Research* – Heckman has been doing a lot more teaching which has left less time for research. On-going project to look at PSNT and Solvita in sweet potato.

*Lab* – Business as usual. Lab is purchasing a new CN analyzer, Elementar VarioMax Cube. Lab recently procured an XRF to screen soils for lead, work is on-going to get it set up.

* *Pennsylvania:*

*Research* – NESARE cropping systems experiment, on-going project looking at PSNT sampling where manure is injected to determine best sampling protocol, a project evaluating N additives for both fertilizer and manure to increase NUE (nitrification inhibitors, urease inhibitor), S survey and S response work in field corn, GIG P-index project, a project evaluating several soil digestion methods to determine total P.

*Lab* – year over year sample volume flat in FY15, very slow spring due to cold weather. New equipment includes two LabFit pH robots, an IC for the drinking water program, and two EnvExp AutoBlock digesters.

* Cornel:

*Research* – continuing to do manure application work, greenhouse gas emission work in long-term rotation, project to evaluate corn yield potential, CIG P-index project, nutrient balance project, acid whey land application project, active canopy sensors to look at N response in corn and sorghum, BMR forage sorghum, double crop forage project which includes yield, feed value, and economics.

*Lab –* sample volume for soil health continues to increase (1200 samples), large number of plant tissue samples, university is considering increasing overhead fees, so lab may need to increase fees, on-going work with hops, bitter-pit in Honey Crisp.

* *Connecticut:*

*Research –* Morris has continued work on the adaptive management project, P stratification in turf.

*Lab –* volume is down some from previous year. Now using a Westco discrete analyzer for ortho P and NO3.Resently purchased a, new dishwasher. Main change is software update; will launch January 1st. Master composter program has continued

* *Vermont:*

*Research –* collecting edge of field runoff losses to improve calibration of P-index; climate change project in Lake Champlain Valley, stream quality, N and P losses; Ross has a copy of students working on P

*Lab –* sample volume consistent this year. Most lab work is research or classroom analyses (Ross’s students). No new equipment. New software implemented for recommendations.

* *Maine:*

*Research –* Organic bread wheat project; NESARE grant for high-tunnel tomato; NESARE multi-state Organic vegetable production systems project. *Lab –* sample volume is steady, diversified, bringing in samples from Vermont, NY (16,000 routine soil samples, 1000 plant tissue samples); fertilizer inspection samples increased due to priority shifts by State; large number of prepared samples for on-campus research. New Leco TruMac CN analyzer.

* *Massachusetts:*

not represented, no report

**Next joint (NCERA-13, NECC-1312, SERA-6) regional meeting:** will take place in 2016. NECC-1312 will host. Penn State to chair NECC-1312 in 2016.

All present agreed to the week of July 18th – 22nd. Spargo and Beegle will check availability of potential venues in State College and follow-up with NECC-1312, NCERA-13, and SERA-6.

**Adjourned at 12:30 PM**