Fertilizer Workgroup - Second Meeting Notes – Agriculture

These notes capture, to the best of our ability, the statements made and opinions voiced at this meeting. The purpose of posting these notes is to ensure transparency in the LINAP workgroup process. These notes should not be used as a reference document. The statements in this document are not necessarily supported or endorsed by NYSDEC or LIRPC.

Date: June 21, 2017
Location: Offices of the NYS Department of Environmental Conservation, Stony Brook, NY
Purpose: Review the results of the Fertilizer Workgroup questionnaires;
Review initiatives by agriculture to reduce fertilizer nitrogen use.

Attendees:

Name	Representing
Nora Catlin	Cornell Cooperative Extension of Suffolk County (CCE)
Jessica Anson	Long Island Farm Bureau (LIFB)
August Ruckdeschel	Suffolk County Economic Development & Planning (SCEDP)
Ann Marie Calabro	Suffolk County Soil & Water Conservation District (SCSW)
Alison Branco	Peconic Estuary Program (PEP)
Elizabeth Hornstein	Peconic Estuary Program (PEP)
Jeremy Campbell	South Shore Estuary Reserve (SSER)
Kevin McDonald	The Nature Conservancy (TNC)
Marshall Brown	Save the Great South Bay (SGSB)
Cathy Haas	Department of Environmental Conservation (DEC)
Lorraine Holdridge	Department of Environmental Conservation (DEC)
Maria Isaacson	Department of Environmental Conservation (DEC)
Kristin Kraseski	Department of Environmental Conservation (DEC)
Joyce Rodler	Department of Environmental Conservation (DEC)
Susan Van Patten	Department of Environmental Conservation (DEC)
David Berg	Long Island Regional Planning Council (LIRPC)

Distribution: All Attendees

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- **Overview of LINAP and Introductions**

- **Fertilizer Products**
  - General
    - Products for farms vs. turf very specific
    - More progress has been made managing phosphorus than nitrogen – (on Long Island phosphorus isn't as big an issue as nitrogen due to difference in soil types. There have been more management efforts focused on nitrogen than phosphorus on Long Island.)
  - Controlled-release fertilizer
    - Use is being expanded to field crops

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- Barrier – the right type of fertilizer for a specific crop
- Use dependent on availability of appropriate types of fertilizers, cost and research on yields
- Demand and interest increasing
- Less leaching even with a lot of rain as it's released over time

➢ Water-soluble fertilizer
- Used mostly in greenhouses (ornamental production)

➢ What dictates use of water soluble vs. slow release nitrogen?
- Perfect scenario: rate on target, timing on target (used when plant can absorb)
- Following up with appropriate irrigation

➢ Are there smaller / local fertilizer manufacturers for agriculture?
- Major fertilizer producers tend to be international
- Tech reps from the fertilizer manufacturers and distributors; growers/producers and commodity specialists at Cornell would be knowledgeable about their particular commodity/field
  - John Bokina from Long Island Cauliflower Association is a good source of information

❖ **Conventional and Vertical Farming**

➢ Save the Bay - the problem is traditional farming
- The future is vertical 'urban' farming; Aero Farms in Newark - 5% of water and pesticides

➢ Industry Advisors
- Are Aero farms profitable?
- This type of urban farming may be possible on a small scale, but unrealistic as a large-scale replacement for traditional farming
- CCE - It is an unrealistic assumption that vertical farms can replace traditional farming for numerous and various reasons. Many crops may not be able to be grown effectively or economically using hydroponics. There is a large capital expense to constructing and operating these farms (building costs, heat, power, etc.) all of which tend to be at a higher cost on Long Island than elsewhere in the country. There also are zoning codes to consider. There is a lot of buzz about this topic lately. While there may be some benefits, this is not a viable option.

❖ **New Technology**

➢ SCEDP - technological advances will reduce fertilizer use
- Increased use of farm weather stations, drones, hiring of agronomists
- Fertilizer is a big expense for farmers – an incentive to use it wisely

❖ **Suffolk County Agricultural Stewardship Plan**

➢ CCE - The Suffolk County Ag. Stewardship Plan is a comprehensive document developed by a panel of knowledgeable individuals from various agencies, organizations, and individuals. It summarizes the goals, environmental concerns, the

progress to date, challenges, and recommendations on managing and preventing nutrient and pesticide leaching.
- Lists vegetables for which trials still need to be done (a lot done for corn and potatoes)
- Cover crops for nitrogen mitigation
- Most recommendations in the plan request funding which has not yet been secured

❖ **Governor Cuomo's Grown & Certified Program**
- A marketing and branding incentive that highlight farmers belonging to program who are trying to adhere to higher standards for food safety and environmental responsibility.
- Provides use of NY Grown and Certified label and some promotion for involved growers. Growers need to be Agricultural Environmental Management (AEM) and Good Agricultural Practices (GAP) certified. Some growers may participate; but have not seen a lot of interest in this on Long Island thus far.
- Long Island Sustainable Winegrowing Association is an example of an organization voluntarily adapting best management practices

❖ **Drip Irrigation**
- Various crops use drip irrigation – vineyards, nurseries, greenhouses, some vegetable or other row crops.
- A lot of hand watering - some controlled release, some water soluble
- In greenhouses and some container nurseries, you will see a combination of hand watering, overhead irrigation, drip irrigation, and some flood benches. It would be rare to see hand watering used elsewhere.

❖ **Nurseries**
- Use drip irrigation - very expensive but more sophisticated delivery
- Greenhouse grown crops
- Some new greenhouses might be considered closed systems; but not all
- Nurseries will use various types of drip irrigation, but will also use overhead irrigation (various types) as well. Delivery can be sophisticated, but doesn't have to be.
- Managing nutrient rates and irrigation will reduce potential effluent from leaching. Some greenhouses will recycle irrigation.

❖ **Farmers for the Future Program through Peconic Land Trust**
- Empire State Development funding
- Funding available for and encourages sustainable practices and other categories

❖ **Nutrient Management Plans (NMPs), Integrated Pest Management Plans (IPMPs) and Best Management Practices (BMPs)**
- Measuring how much fertilizer nitrogen is used doesn't tell you how much is going into groundwater
- It is difficult to always measure the amount on nitrogen going to groundwater. Recording the amounts of nitrogen used over time (and the reduction) is one way to assess nitrogen use and improvements.

Fertilizer Workgroup - Second Meeting Notes – Agriculture

- BMPs include any practice that will reduce nutrient leaching. Practices include use of improved varieties or cultivars, more accurate rates, better fertilizer delivery, use of cover crops, soil or foliar tests to determine proper rates, and so on.
- NMPs based on application rate, soil testing, tissue testing, practices to keep nitrogen from touching soil - mixing, equipment washing, cover cropping, irrigation
  - CCE - The details of NMPs should come from Natural Resources Conservation Service (NRCS) and Soil and Water Conservation District (SWCD). NMPs are specific to each farm, taking into account the details listed to the left and more. In many cases, for a grower to qualify for various cost share or other funds, they will first need a farm-specific NMP
- Funding for NMPs; Environmental Protection Fund (EPF) has funds for more NMPs
- CCE - Recently there have been some funding allocated towards assisting farmers with NMPs as well as conducting research to assist with the development of practices and recommendations. Some of the research projects are outlined in the Suffolk County Ag. Stewardship plan and include trials investigating controlled release nitrogen fertilizer, variety trials, how BMPs relate to detections in groundwater, and strategies to limit leaching from container-grown plants.
- Roughly half going to Cornell; remainder for SWCD to support an agronomist; cost share dollars; staff training
- Certification process changing right now for NMP planner
- NMP and IPMP development identified as a critical piece to help further BMP adoption; proven research and demonstration are also key
  - NMPs make farmers eligible for additional types of funding (e.g. cost-share funding)
  - LINAP should obtain a list of BMPs – NRCS may be a good place to start
- Big picture – research and development on BMPs appropriate to put in those BMPs
- BMP Monitoring
  - Don't have funding for the effort required to monitor effectiveness of BMPs
    - CCE – it might be possible that some approximations be made.
  - Most funding programs do not have monitoring attached
  - No requirement for monitoring - all voluntary
- Why can't NMPs be used across all farms (i.e. why must a new plan be prepared for each farm)?
  - Long Island farming is very diverse – many specialty crops
  - Some of the NMPs may have the same elements
  - Federal program requires written NMPs for individual farms before funding can be accessed
  - Every farm has different soil/soil health, crop rotation, and use history
  - Can make general BMP recommendations, but need to be individual at NMP level
  - Some practices from individual NMPs catch on at other farms; proof that it works on neighbors' farms may be more important than price point
- Prioritization of NMPs
  - Need to come up with priority system for where to apply funding first - subwatersheds

- 51 NMPs or pest MPs written over next five years through USDA-NRCS Regional Conservation Partnership Program
- There are about 75 farms in the Peconic Estuary; about 300 in Suffolk County

➢ Motivation to prepare NMPs
- Environmental stewardship is a big motivation for some farmers
- Soil health vs. groundwater health
- Long Island is home to small locally-owned family farms; they are more interested in water quality for personal reasons than larger farms in other parts of the country

➢ Recommendations for LINAP
- Rather than hire from the outside, get local SWCD staff trained in NMPs and IPMPs
- Additional research is needed to develop BMPs; funding is critical for research programs
- Funding for monitoring is vital; without monitoring it is impossible to establish baselines and verify the efficacy of nutrient pollutant reduction programs

❖ **Peconic Estuary Nitrogen Reduction**
➢ Peconic Estuary - about 17% of the nitrogen load comes from agriculture
➢ Should there be an NMP for the whole estuary?
➢ The existing total maximum daily load (TMDL) has targets - 30% reduction across the board
➢ Is there a way to pay for performance – provide an incentive for complying with NMP?
- What would be the source of funding? One would need to weigh costs/lb. nitrogen reduced

➢ County putting a lot of faith into controlled release fertilizers (residential)
➢ Look at how Chesapeake Bay incorporating NMPs into their TMDL
➢ Might there be a role for a nitrogen market/trading program?
- Trading works only if there is a nitrogen load limit in place; primarily point source to point source
- Might be a way to subsidize bioextraction (shellfish/seaweed farming for nitrogen reduction)

❖ **Bioextraction (shellfish/seaweed farming for nitrogen reduction)**
➢ Bioextraction is one means of recycling excess nutrients that already exist in the system
➢ Seaweed
- Most feasible to grow very far east in deeper waters
- Immediate market is food and 'nutriceuticals' sales; value of non-food crop may be lower
- May be a market for a locally manufactured seaweed-based fertilizer (kelp)
- Could also be part of fish or animal feeds
- There is a current kelp project by CCE Marine Program

❖ **Urine Separation and Use as Fertilizer**
➢ Schools may be a good source
➢ Processing is involved in production of a fertilizer product

- Ammonia concentrate can damage plants – greenhouses
- Would manufacturers look at it as a raw material?
- CCE - The logistics of this would be challenging; would the cost of the collection outweigh the benefits? Public perception would be important. Also would need to be proven effective and cost effective for grower use. For urine and brewery waste, if it makes practical, economic and scientific sense to use as fertilizer source, caution must be used such that it is not over applied or overused.

❖ **Brewery Waste**
- Long Island brewery - waste classified as 'industrial' by Health Dept. (when wanted to spread on fields)
  - CCE - This did occur regarding wastewater from malting, but it is my understanding that this is no longer the case and that spreading on fields is acceptable. Spent grain is valuable for animal feed. Sometimes incorporated into compost. This seems to be at the moment a minor consideration.
- Would need to have a beneficial use determination done
- Have to be careful with this waste as it has a high biological oxygen demand (BOD) content

❖ **Role of NYS Agriculture & Markets**
- Current role of Ag. & Markets: test for guaranteed analysis of fertilizer sold; potential source of funding but they are not very involved in local industry
- SCEDP Division of Water Quality puts out a fertilizer study every year; based on NYS Ag. & Markets data – Nitrogen Fertilizer Reduction Initiative Annual Report
  - Total fertilizer sold, farm vs. non-farm sales, etc.

❖ **Suffolk County Agriculture Stewardship Plan Committee**
- A lot of time and energy was expended in development of the Agriculture Stewardship Plan
- When plan was completed it was adopted by the County legislature
- Stewardship committee was established that is supposed to meet periodically
  - 14 representatives - many need to be appointed
  - Planning Department chair must recommend someone; Health Dept.; legislature EPA committee; Cornell; SWCD; NRCS; NYS DEC; water authority; 5 agriculture industry reps recommended by members of that industry

❖ **Suggested Next Steps**
- Add at least two farmers to the workgroup; also, Liz Camps of the NRCS
- Investigate additional funding
  - In other parts of country, nonpoint source program funds these types of things; never able to get '319' funding here for environmental issues; struggle to get federal funding here
- Pay attention to messaging and its source

  - With agriculture, it is very important where the message to the farmers comes from: trust must be cultivated over time; trusted entities include CCE, SWCD, NRCS
- Some recognition of proceeding with the goals and plan laid out in the Suffolk County Ag. Stewardship Plan might be good to add.
- CCE recommends adding at least one representative farmer for each commodity. The farmer should be representative of the average growers, and knowledgeable about their industry. CCE can help with recommendations.