Fertilizer Workgroup - Second Meeting Notes – Golf Courses

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 20, 2017
Location: Suffolk County Water Authority Education Center in Happauge
Purpose: Review the results of the Fertilizer Workgroup questionnaires;
Review initiatives by the golf industry to reduce fertilizer nitrogen use.

Attendees:

Name	Representing
Tom Kaplun	LI Golf Course Superintendents Association (LIGCSA)
Joe Gardner	LIGCSA and Fresh Meadows Country Club
George Iannaccone	Irrigation Association of New York
Kevin McDonald	The Nature Conservancy
Marshall Brown	Save the Great South Bay
Lorraine Holdridge	Department of Environmental Conservation
Cathy Haas	Department of Environmental Conservation
Kristin Kraseski	Department of Environmental Conservation
David Berg	Long Island Regional Planning Council
Elizabeth Cole	Long Island Regional Planning Council

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- **Overview of LINAP**
  - How fertilizer ties in to overall nitrogen reductions to groundwater and surface waters

- **Introductions**
  - George Iannaccone (Irrigation Association of NY)
    - Want to see right use of N; a lot of room for improvement
  - Kevin McDonald (Nature Conservancy [TNC])
    - Looking for continuous commitment to improvement, feedback, management
    - Prefer to minimize amount of fertilizer that passes root zone for every application
  - Marshall Brown (Save the Great South Bay)
    - Bay is dying; worst brown tide ever recorded; clamming down; not catching fish; major impediment to bay is how much N coming into bay; fertilizer is low hanging fruit
  - Tom Kaplun (LI Golf Course Superintendent Assoc. [LIGCSA])
    - Demonstrate how golf courses are effectively using N
    - Operators balance plant health with playability and environmental sensitivity
  - Joe Gardner (LIGCSA)
    - Wants to be resource for us regarding N;
    - Try to get word out to courses how to use N properly to protect water resources; learn
  - David Berg (Long Island Regional Planning Council [LIRPC])

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- Acknowledge that golf industry unique in that a lot of turf professionals involved
- Is there info missing that will help us reduce N? Are new formulations possible?
- Are there better ways to ensure BMPs followed everywhere?

- Lorraine Holdridge (NYS Department of Environmental Conservation [DEC])
  - Need to protect quality of our environment
- Other participants
  - Sue Van Patten (DEC)
  - Cathy Haas (DEC)
  - Kristin Kraseski (DEC/NEIWPCC)
  - Maria Isaacson (DEC)
  - Elizabeth Cole (LIRPC)

Background

- Map showing number of golf courses in LI (125)
  - 125 - many in Nassau County
- Nitrogen impacts vary with locations
  - Proximity to groundwater (depth to groundwater)
  - Proximity to surface water (travel time 5-10 year vs. 50-100 year)
  - Ultimately, all have potential for N pollution
- Pollution definition – excess chemical compound where it doesn't belong
- Questionnaires
  - All questions related, but some more relevant to golf than others
  - Golf courses ranked most responsible among sectors for fertilizer use
- Not all golf courses in LIGCSA, but many; membership is voluntary
- Golf course turf is generally highly managed
- General background for golf course superintendents
  - Trend is 4-year accredited colleges (turf management or plant/soil science)

Formulations and Applications

- Smaller particle size
  - Should be available, but would be more expensive
  - Large particle size has more potential for fertilizer to run off
  - Smaller particle size has better distribution and uniformity and reduces amount of N needed (answering as homeowner & superintendent)
  - More expensive as particle size gets smaller
- Difference between fertilizers used by golf courses and other industries?
  - Can use some of same
  - Professional landscapers sometimes use same as golf
  - Difference in golf fertilizer is primarily more slow release
  - Most golf fertilizers are specifically tailored to golf course use - more high end
- Manufacturers include:
  - Koch; Agrium; Agrotain; Harrell's; WinField (Land O'Lakes); Andersons - all are manufacturers and distributors
  - Liquid - Plant Food Company
  - Andersons and Plant Food Company best to bring in

Fertilizer Workgroup - Second Meeting Notes – Golf Courses

- Big transition on golf side to slow release (less water soluble) N products
  - Methylene urea; other forms; more expensive
  - Slow release liquids favored (but not 'fertigation') as granular is more mobile
  - Less frequent granular/bulk applications
  - More frequent "spoon fed" and liquid applications; better conditioning; more environmentally responsible; requires more labor expense, but save on fertilizer cost
  - Apply via spray vehicle (not usually irrigation system) - more N formulations available that have long lasting effect
  - UMAXX (Simplot) - 100% urea - most rapidly available N; stabilized so that melt in water & have controlled release product (homeowners don't have access - mostly cost)
- Fertilizers now available that help release P already in-soil - since P fertilizer ban
  - Makes the existing P readily available
  - Kind of change manufacturers make to stay ahead of curve; now seeing that with N
- Timing very important and changes with weather and season
  - Each season needs are different
  - Year with bad ice damage, need readily available formula for quick repair
- TNC - would irrigation/LIGCSA host meeting with manufacturers?
  - Goal would be to explore possible new products to satisfy unmet industry needs
  - Potentially different outcome than meeting with this workgroup
- Irrigation Association - manufacturers always looking for new & improved ways to use things
  - New formulations/methods that are better may be yet to come

Costs

- Are golf courses willing to spend money on better fertilizers, personnel, equipment?
  - 75% yes; 25% no (economics is driver)
  - N pushes growth, which is not necessarily golf course's goal (need turf to be playable)
- Operating costs of golf courses
  - Fertilizer cost about 4% of operating budget (or 10% of all costs minus labor)
  - Biggest obstacle to increased slow release formulations is cost
- Unique micro environments on LI mean different demands in different places
- Summary - golf courses generally use higher cost products than landscapers and homeowners
  - Driven in part by manufacturers recognizing N control is environmentally important
  - For well managed course - spoon feeding applications are best but most expensive
  - Prefer to minimize mowing due to costs as 10-15% of operating cost is fuel for mowing; 75% of equipment is used for mowing
- Probably 90-95% of courses conduct soil tests - to look for deficiencies and excesses

Regulations

- Suffolk Co. regulation - think golf course provision is reasonable
  - 3 lbs nitrogen/1000 sq. ft. per year seems like a lot
  - Joe Gardner - 1 lb./1000 sq. ft. per year

- Tom Kaplun - 2.2 lbs./1000 sq. ft. per year
- Average amount between 2-4 lbs./year
- Courses using higher quantity might not use chemicals for disease protection, so use N applications to strengthen plant and protect against certain diseases
- Study done at Bethpage State Park to determine level of 'disease' players would tolerate

➢ State regulation on application timing
- December 1 not an issue at all - wouldn't put fertilizer down then; wasting money; science has proven applying in spring and October most effective
- Spring application date - April 1 may be too late - March 1 would be much more realistic; application date should be based on soil temperature
- Liquid application in the spring is best

➢ Save the Great South Bay
- Landscape industry loses billable time by waiting until April 1, so put higher load in then
- Spring rains wash fertilizer nitrogen into Bay then with worsening Brown Tides

➢ Irrigation - Suffolk Co cutoff of November 1
- See overfeeding in October as a result (landscape not golf)

➢ State regulation does not specify granular or liquid
- Liquid - esp. in spring - doesn't sit around the same way as granular – best approach
- If ever were to consider changing regulation, would take more specific considerations into mind, make sense for industries; enforce better

➢ Regulation not very well enforced because can buy fertilizer anytime without repercussion - on our agenda to talk to manufacturers about

➢ TNC – consider making an exception in the regulations when there is an approved Nutrient Management Plan (NMP)
- Benefit those using light product - more flexibility in use

❖ **Expectations and Perceptions**

➢ Demanding consumers and player expectations
- Courses need to be playable
- Part of golf's appeal is the aesthetics of the course
- Want every course to look like what they see on TV - not sustainable

➢ Interest increasing among players for environmentally managed golf courses
- Up to courses to talk to members on expectations - water use / environmental protection

➢ Professional Golfers Association of America (PGA), Golf Course Superintendents Association of America (GCSAA), and others starting to educate players to address their expectations

❖ **Management measures**

➢ Value in water quality certification?
- Working on certification to get members to implement BMPs and get recognized for it
- Audubon Signature certification - not water related; no recertification needed

- Would have to be location-specific to address different soil conditions, nutrient retention
- Biggest incentive would be to submit NMP to state (technical assistance grant)
- Industry "wants some kind of certification"

➢ NYS BMPs - have been doing case studies
- Both did them re: different issues

➢ Water quality monitoring on courses as part of certification
- Difficult because of historic groundwater pollution - needs to be about managing now

➢ N trading programs - would need to give courses tax credits

❖ **Nutrient recycling**

➢ Bioharvested materials - been huge in industry
- Humic materials are important

➢ Treated wastewater effluent - Indian Island course uses
- Something courses would use? Member issues?
- Concern about being required to take a certain amount of water a year (issues in FL)
- Not anything they're unwilling to try - case studies & trials make them comfortable
- Have to be able to sell concept to membership; can't have smell

➢ Urea / urine diversion as wastewater treatment process - urine available to process
- Used some places in agriculture
- If fertilizer manufacturer can make it into a form that works on golf courses, then OK

➢ Sugar Kelp
- Expensive for fertilizer use
- Have been spraying kelp product about 25 years (harvested & mashed into watery texture)
- Helps with drought and stress tolerance
- If more grown on LI would be very appealing
- Demonstration project just completed in Peconic Bay
- Manufactured by Ocean Organics (Maine), sold/distributed by Lebanon Turf

➢ LIGCSA (Kaplun) - use formulation made up of lobster/crab shell/meal
- Ocean Organics 12-0-12, does have fishy smell
- Chitin product from shellfish shells used - coats plant roots
- Courses seek these products - will email us website with product information

➢ Another bio-harvested product used in the last few years - worm castings
- Byproduct of worm waste - used in golf and agriculture
- Drives roots, density, increases crop yields
- "Worm Power" manufactures liquid and granular products; worm farms in upstate NY (very large one in Rochester)

➢ These products allow for reduction in N
- Available to golf courses, not homeowners (cost, technology to distribute)

➢ Save the GSB- sea lettuce (Ulva) in Shinnecock Bay; looking into harvesting for fertilizer

❖ **Native plants**

➢ Defined as plants 'indigenous' to LI – those here before European settlement
- Examples on LI - pitch pine, certain oaks

- Broadly speaking - require less fertilizer and water, better disease resistance
- Golf course use - clubhouse grounds
- In golf, 'native' suggests untreated or naturalized area (less water, less N)
- Don't see use a lot of usefulness on golf courses, perhaps in non-play areas
- Biggest impediment is players' expectations for course appearance
  - Will players tolerate naturalized areas with native plant materials? Look unsightly?
- Two biggest drivers on LI golf courses - water use (conservation) & fertilizer use
  - Biggest move to naturalized areas would be having to water less
- Most courses have wells and do not buy water from municipalities

❖ **Other**

- LINAP
  - Public assumes golf courses are major problem because they look so green
  - Coefficient used in LINAP modeling will be sent to participants
- LIGCSA
  - Appreciate opportunity to talk about what they do, rather than just being dictated to
  - Want to be a resource
  - Can think about whether to get USGA involved
  - Professors at Cornell University good resource (wrote BMPs) - Marty Petrovic did studies at Bethpage
- Irrigation Association
  - Consider giving credit to pesticide applicators for fertilizer application courses - could be a big draw

❖ **Suggested Next Steps**

- Golf course superintendents should remind their constituents in Suffolk Co. that there is a regulatory limit of 3 lbs. /1000 sq. ft.
  - Encourage to do the same in Nassau Co
- LIGCSA - look into & share with us PGA, etc. outreach about player's expectations re: emerald green course
- LINAP will review information learned and determine next steps
- Next meeting likely to be in early fall